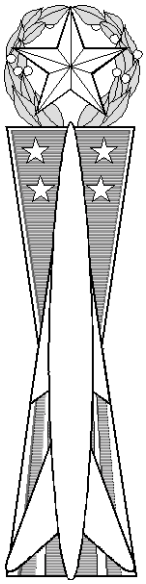
DEPARTMENT OF THE AIR FORCE
Headquarters US Air Force
Washington DC 20330-1030

CFETP 2M0X1
31 October 2000



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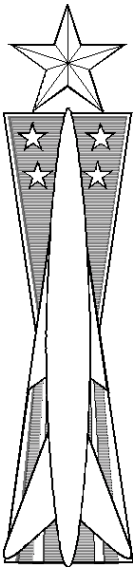
AFSC 2M0X1

MISSILE AND SPACE SYSTEMS ELECTRONICS



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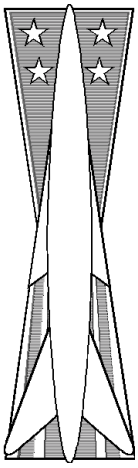

CAREER FIELD EDUCATION AND TRAINING PLAN (CFETP)

DEPARTMENT OF THE AIR FORCE **CFETP 2M0X1**
Headquarters US Air Force **31 October 2000**
Washington DC 20330-1030

MISSILE AND SPACE SYSTEMS ELECTRONICS SPECIALTY

AFSC 2M0X1
CAREER FIELD EDUCATION TRAINING PLAN

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OPR: HQ USAF/ILMW
Prepared by: Ms Janet Bailey, 532 TRS
Approved by: SMSgt Patrick Whitley, HQ USAF/ILMW

Part II

OPR: HQ USAF/ILMW
Prepared by: Ms Janet Bailey, 532 TRS
Approved by: SMSgt Patrick Whitley, HQ USAF/ILMW

MISSILE AND SPACE SYSTEMS ELECTRONICS SPECIALTY
AFSC 2M0X1
CAREER FIELD EDUCATION TRAINING PLAN

PREFACE

1. A highly trained, motivated enlisted workforce is the Air Force's key resource in meeting challenges of the future. If the Air Force is to meet present and future challenges, it's essential the workforce be effectively and efficiently trained to perform duties within each skill level of the Air Force Specialty (AFS). The Career Field Education Training Plan (CFETP) for the Missile and Space Systems Electronics specialty provides the framework and guidance necessary for planning, developing, managing, and conducting a career field training program. The plan documents a "training roadmap" for the career field. This roadmap is used to identify mandatory and optional skill level training an individual should receive during their career in the Missile and Space Systems Electronics Specialty.

2. The CFETP consists of two parts that are used to plan, manage, and control training within the 2M0X1 career field.

a. Part I provides information necessary for overall management of training in the career field. **Section A** explains how everyone will use the plan; **Section B** identifies career progression information, duties and responsibilities, training strategies, and career field flowcharts; **Section C** associates each skill level with specialty qualifications (knowledge, training, education, experience, and other); **Section D** identifies training resource constraints. Some examples: funds, manpower, equipment and facilities.

b. Part II includes the following: **Section A** identifies the Specialty Training Standard (STS)/Course Training Standard (CTS) and includes duties, tasks, technical references to support training, Air Education and Training Command (AETC) training conducted, wartime course/core task and correspondence course requirements; **Section B** identifies available OJT support materials. Qualification training packages identified in this section have been developed to support both upgrade and qualification training. These packages are indexed in AFIND 8 and are "F" distribution; **Section C** contains a training course index supervisors can use to determine resources available to support both mandatory and optional training. **Section D** can be used to identify Major Command (MAJCOM) unique training requirements. At unit level, supervisors and trainers use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

3. Use of this CFETP will ensure each individual in the Missile and Space Systems Electronics specialty will receive effective and efficient training at the appropriate point in his/her career. This plan will enable the Air Force to train today's workforce for tomorrow's mission.

Abbreviations/Terms Explained

Advanced Training - A formal course that provides individuals who are already fully qualified in their Air Force Specialty (AFS) with additional skills/knowledge to enhance their expertise in the career field. Training is for selected career airmen at the advanced level of an AFS.

Career Development Course (CDC) - A formal written course that provides personnel with additional knowledge necessary to advance to the next higher skill level.

Career Field Education Training Plan (CFETP) - A multipurpose document that encapsulates the entire spectrum of training for a career field or specialty. It outlines a logical growth plan that includes training resources and is designed to make career field training identifiable, eliminate duplication, and is budget defensible.

Continuation Training - Additional qualification training, exceeding the minimum upgrade training requirements, with emphasis on present or future duty assignments.

Core Task - Tasks identified by Air Force specialty functional managers as minimum qualification requirements within an Air Force Specialty or duty position.

Critical Task - Tasks identified by the MAJCOM functional manager or local unit supervisors as additional qualification requirements within a specialty or duty position for assigned personnel.

Cruise missile (CM) - Personnel in AFSC 2M0XX and 2M0X1B associated with Air Launched Cruise missile (ALCM), Advanced Cruise missile (ACM) and Conventional Air Launched Cruise missile (CALCM) programs. These personnel are normally associated with Air Combat Command, but may be assigned in Air Force Material Command positions.

Electronics Laboratory (ELAB) - Consists of personnel in AFSC 2M0X1 performing automated test equipment maintenance at ICBM units.

Electro-Mechanical Team (EMT) - A maintenance team consisting of 2M0X1 personnel who dispatch to remote launch facilities (LFs) and missile alert facilities (MAFs) to perform maintenance on the assigned ICBM weapon system.

Field Technical Training (Type 4) - Special or regular on-site training conducted by a field training detachment (FTD) or by a mobile training team (MTT).

Initial Skills Training (Type 3) - A formal resident course which results in award of the 3-skill level.

Intercontinental Ballistic Missile (ICBM) - Personnel in AFSC 2M0XX associated with Minuteman III and Peacekeeper weapon systems. These personnel are normally associated with Air Force Space Command, but may be assigned in Air Force Material Command positions.

Occupational Survey Report (OSR) - A detailed report showing the results of an occupational survey of tasks performed within a particular AFS.

On-the-Job Training (OJT) - A method used to certify personnel in both upgrade (skill level award) and qualification (duty position certification) training. OJT is hands-on, over-the-shoulder training conducted at the duty station.

Qualification Training (QT) - Actual hands-on task performance-based training designed to qualify an airman in a specific duty position or specific task. This training occurs both during and after the upgrade training process and is designed to provide performance skills training required to do the job.

Research and Development (R&D) - Personnel in AFSC 2M0XX associated with research, development, acquisition, and support of missiles, spacelift, lasers, weapons, drones, etc. These personnel are normally associated with Air Force Material Command.

Resource Constraints - Resource deficiencies, such as money, facilities, time, manpower, and equipment that preclude training from being delivered.

Spacelift - Personnel in AFSC 2M0XX associated with national space programs supporting the launch and recovery of space assets. These personnel are normally associated with Air Force Space Command.

Specialty Training Standard (STS) - Part II, Section A of the CFETP which identifies the training standard required to achieve a skill level(s) within an enlisted AFS. It standardizes and controls the quality of individual training.

Standard - A fixed quantity, quality, or level of performance that an individual is expected to demonstrate.

Upgrade Training (UGT) - Mandatory training which leads to the award of a higher skill level.

Verification and Checkout Equipment (VACE) - Consists of personnel in AFSC 2M0X1B performing automated test equipment maintenance at Cruise missile units.

PART I
Section A - GENERAL INFORMATION

1. **Purpose of the CFETP**. This CFETP provides information that career field functional managers, training managers, commanders, supervisors, trainers, and the technical training center use to plan, develop, manage and conduct an effective and efficient career field training program. The plan outlines training individuals must receive to develop and progress throughout their career. This plan identifies initial skills, upgrade, qualification, advanced, and continuation training. This plan does not address Professional Military Education (PME) or ancillary training. The CFETP has several purposes:

a. Serves as a management tool to plan, develop, manage, and conduct a career field training program. It is also used to ensure that established training is provided at the appropriate point in an individual's career.

b. Identifies task and knowledge requirements for each skill level in the specialty and recommends training throughout each phase of an individual's career.

c. Lists training courses available in the specialty, identifies sources of training, and provides the training medium.

d. Identifies major resource constraints that impact implementation of the desired career field training program.

2. **Use of the CFETP.** The CFETP will be approved and maintained by the Air Force Career Field Manager (AFCFM). The MAJCOM 2M0XX Functional Manager and AETC will review the CFETP annually to ensure currency and accuracy and forward recommended changes to the AFCFM. MAJCOMs must make sure training isn't developed that can be satisfied by existing courses. This plan will be used at all levels to ensure a comprehensive and cohesive training program is available and instituted for each individual in the career ladder.

a. AETC training personnel will develop/revise formal resident and exportable training based upon requirements established by the users and documented in part II of the CFETP. They will also develop procurement and acquisition strategies for obtaining resources needed to provide the identified training. In addition, the AETC training manager will prepare a camera ready CFETP and send to SAF/AAIPD for publication and notify HQ AETC to index the CFETP in AFIND 8. The training manager is also responsible for updates and publication of all changes. A Utilization and Training Workshop (U&TW) will be conducted as needed and hosted by the training manager. The AFCFM will chair the U&TW.

b. The MAJCOM functional managers will ensure their training programs complement the CFETP mandatory initial skills and UGT requirements. OJT, resident training, contract training, or exportable courseware/courses can satisfy identified requirements. MAJCOM-developed training must be identified for inclusion in this plan and must not duplicate available training.

c. Each individual will complete the mandatory training requirements specified in this plan. Unit level training managers and supervisors will manage and control progression through the career field by ensuring that each individual completes the mandatory training requirements for upgrade specified in this plan as supplemented by their MAJCOM. The list of courses in Part II, Sec. C, will be used, as a reference to determine training required.

PART I
Section B - CAREER PROGRESSION AND INFORMATION

1. **Purpose**. This section provides information career field functional managers, training managers, commanders, supervisors, trainers, and the technical training center use to plan career field progression in the Missile and Space Systems Electronics specialty. This plan describes the functions and responsibilities of AFSC 2M0X1, skill progression, training decisions, and outlines Community College of the Air Force educational opportunities.

2. **Specialty Descriptions**:

a. Missile and Space Systems Electronics Apprentice and Journeyman (2M031A/31B/51).

(1) Specialty Summary. Monitors, operates, and directs/controls the operation of consoles, fault display panels, and checkout equipment. Maintains and directs/controls maintenance on missiles, Unmanned Air Vehicles (UAVs), boosters, and payload systems. Operates, calibrates, maintains, and directs/controls these actions on related test, monitoring, and checkout equipment. Performs malfunction analysis. Repairs, maintains, modifies, inspects, services and directs/controls these actions on missiles, UAVs, boosters, and payload systems, subsystems, and ground operating equipment to component level. Performs and directs/controls field level maintenance on electronic test, launch control, checkout, and related ground support equipment. Assembles, disassembles, and directs/controls these actions on missiles, UAVs, boosters, and payloads. Assembles, calibrates, operates, troubleshoots, and tests specialized R&D systems and electronic support equipment. Launches, directs/controls, tracks, and recovers UAVs and operates and maintains related equipment. Performs on- and off-equipment maintenance on strategic bomber-launched missiles, missile subsystems, missile integration systems, and related test, support, and handling equipment. Monitors, analyzes, and compiles system performance data.

(2) Duties and Responsibilities.

(a) *Monitors, operates, and directs/controls operation of consoles, fault display panels, and checkout equipment.* Monitors status of missiles, UAVs, boosters, payloads, subsystems and related support equipment. Operates or directs/controls the operation of checkout and test equipment to determine system integrity.

(b) *Performs missile and UAV maintenance and directs/controls spacelift booster and payload maintenance and launch processing.* Operates, calibrates, inspects, and maintains or directs/controls these actions on aerospace vehicle equipment, operational ground equipment, spacelift boosters, and payloads. Performs and directs/controls maintenance on guidance and

control systems. Repairs, maintains, modifies, inspects, services or directs/controls these actions on missiles, UAVs, boosters, and payloads and subsystems to component level. Assists in data analysis of operational and test launches.

(c) *Assists in malfunction analysis of missile, UAV, booster, and payload systems, subsystems, and related test and operating equipment.* Determines systems status. Operates or directs/controls the operation of test and checkout equipment to isolate malfunctions.

(d) *Performs or directs/controls maintenance on electronic equipment, and coordinates launch processing and maintenance activities. Assembles, disassembles, or directs/controls these actions for missiles, boosters, and payloads.* Maintains, inspects, replaces, repairs, stores, or directs/controls these actions for individual components. Maintains inspection and maintenance records. Uses or directs/controls the use of manual and automatic checkout and test equipment to check integrated missile, booster, and payload systems, subsystems, and related electronic equipment. Coordinates procedures on operating systems such as electrical, guidance and control, and security equipment. Maintains technical orders, and publication files.

(e) *Assesses quality of personnel and equipment.* Inspects personnel performance, equipment, and management functions for compliance with technical data and governing directives. Submits reports to management on all quality assessment findings.

(f) *Conducts maintenance and operations training.* Conducts training of personnel prior to being task certified. Conducts recurring training to assure task proficiency.

(g) *Performs duty as an NCO code controller*. Selects and produces ICBM code material utilizing computerized coding equipment. Safeguards, assigns, issues, and recovers critical code material. Maintains equipment and keeps records for control and accountability of ICBM codes and coded devices. Performs duty as a member of a two-person code controller team.

(h) *Performs Laboratory R&D activities.* Assembles, calibrates, operates, installs, tests, and troubleshoots specialized R&D systems such as: lasers, energetic materials, solid and liquid propulsion, composites, optical, satellite, space structures and power, telescope pointing and tracking, and high power microwave. Operates and maintains support equipment such as: data acquisition, fiber optics, instrumentation, vacuum systems, wind tunnel, test stands and controls systems. Supports scientists and engineers during experiment setup and execution. Collects R&D test data.

(i) *Inspects, services, isolates faults, disassembles, replaces components and wiring, modifies, repairs airframe and surface, reassembles, and checks out cruise missiles.* Inspects missiles upon receipt, download from aircraft, repair, and prior to ready storage. Performs defueling and refueling. Isolates faults to component level. Replaces missile components including turbofan engines, guidance and control subsystems, and wiring harnesses. Repairs missile airframes and control surfaces. Performs missile end-to-end checkout and diagnostic testing. Tests and repairs missile components.

(j) *Performs periodic and unscheduled maintenance on aircraft missile integration systems, isolates faults, and makes repairs*. Tests aircraft missile and bomb rotary launchers, aircraft missile pylons, and subcomponents. Replaces subcomponents, cabling, pneumatic systems, and all associated hardware. Repairs subcomponents to circuit card level.

(k) *Operates, maintains, and calibrates automatic and manual test equipment*. Maintains electronics systems, test sets, test adapter groups, aircraft missile, launcher, and pylon simulators; missile radar altimeter test assemblies; cooling control units; and related peripheral equipment. Maintains portable aircraft and missile systems test equipment. Operates precision power supplies, voltage-current measuring equipment, radio frequency and pulse generating control and measuring equipment, calibration standards, oscilloscopes, and related equipment.

(l) *Compiles, reviews, analyzes, maintains, and disseminates maintenance and historical data for missiles, components, and carrier aircraft missile integration systems*. Tracks system performance to identify adverse trends. Reports analysis findings and total system performance data to higher headquarters. Manages missile system configuration and modification status. Keeps maintenance supervisor appraised of system performance and any developing trends.

b. Missile and Space Systems Electronics Craftsman (2M071).

(1) Specialty Summary. Supervises the operation of consoles, fault display panels, and checkout equipment to determine system integrity in related aerospace vehicle equipment and operational ground equipment. Directs/controls maintenance on guidance and control systems. Supervises the operation, calibration, modification, inspection, and servicing of related maintenance support equipment, related operational ground equipment, aerospace vehicle equipment, UAVs, spacelift boosters, payloads, and subsystems. Coordinates maintenance and operations activities among integrated Missile and Space Systems Electronics Journeyman and Apprentices. Interprets and analyzes data relevant to operational and test launches. Directs compliance of technical, procedural, safety, security, and quality assurance standards. Designs R&D systems. Supervises the assembly, calibration, operation, modification, installation, troubleshooting, and testing of specialized R&D systems and electronic support equipment. Supervises the launching, controlling, tracking, and recovery of UAVs and operates and maintains related support equipment. Performs acquisition and activation functions for related systems. Supervises on- and off-equipment maintenance on strategic bomber-launched missiles, missile subsystems, missile launch systems, and related test, support, and handling equipment. Supervises operation, maintenance, and calibration of automatic and manual test equipment. Supervises maintenance activities.

(2) Duties and Responsibilities.

(a) *Advises on problems in repairing, modifying, and installing aerospace vehicle equipment, telemetry, and flight termination systems on missiles, UAVs, spacelift boosters, payloads, and operational ground equipment.* Resolves maintenance, modification, repair, and launch processing problems by interpreting automatic equipment readouts, circuit schematics,

and data flow. Analyzes malfunctions of missiles, UAVs, spacelift boosters, and payload systems, subsystems, and related maintenance support equipment.

(b) *Supervises missile, UAV, spacelift booster, and payload systems maintenance and launch processing.* Supervises the operation, calibration, inspection, and maintenance of aerospace vehicle equipment, operational ground equipment, spacelift boosters, and payloads. Performs or directs/controls maintenance on guidance and control components, spacelift booster, and electronic launch control and checkout equipment. Coordinates launch processing or maintenance activities. Performs or directs/controls visual inspections, functional checks, faulty component removal and replacement, calibration, and adjustment of electronic systems and subsystems. Supervises the operation, troubleshooting, modification, repair, and testing electronic test and maintenance ground equipment for missiles. Directs/controls the operation of consoles and panels. Analyzes malfunctions of missiles, UAVs, boosters, and payload systems, subsystems, and related equipment. Supervises the maintenance of technical orders, and publication files.

(c) *Assesses quality of personnel and equipment.* Inspects personnel performance, equipment, and management functions for compliance with technical data and governing directives. Submits reports to management on all quality assessment findings.

(d) *Conducts maintenance and operations training.* Conducts training of personnel prior to being task certified. Conducts recurring training to assure task proficiency.

(e) *Performs launch information analysis.* Diagnoses flight data gathered during operational and test launches. Analyzes flight data to determine cause of anomalies recorded.

(f) *Performs duty as a member of a spacelift launch team.* Monitors spacelift booster and payload status and provides inputs to the Air Force launch controller for consideration during countdown activities.

(g) *Performs duty as an NCO code controller*. Selects and produces ICBM code material utilizing computerized coding equipment. Safeguards, assigns, issues, and recovers critical code material. Maintains equipment and keeps records for control and accountability of ICBM codes and coded devices. Performs as a member of a two-person code controller team.

(h) *Evaluates and performs Laboratory R&D activities*. Designs, assembles, installs, calibrates, inspects, operates, tests, troubleshoots, and modifies specialized R&D systems such as: lasers, energetic materials, solid and liquid propulsion, composites, optical, satellite, space structures and power, telescope pointing and tracking, and high power microwave. Designs, maintains, modifies, and resolves problems associated with support equipment such as: data acquisition, fiber optics, instrumentation, vacuum systems, wind tunnel, test stands and control systems. Supports and advises scientists and engineers during experiment design, setup, and execution. Collects and analyzes R&D test data.

(i) *Supervises cruise missile inspection, servicing, fault isolation, disassembly, component and wiring replacement, modification, airframe and control surface repair,*

reassembly and checkout. Inspects missiles upon receipt, download from aircraft, repair, and prior to ready storage. Performs defueling and refueling. Isolates faults to component level. Replaces missile components including turbofan engines, guidance and control subsystems, and wiring harnesses. Repairs missile airframes and control surfaces. Performs missile end-to-end checkout and diagnostic testing using automatic and manual test equipment.

(j) *Performs periodic and unscheduled maintenance on carrier aircraft missile integration systems, isolates faults, and makes repairs*. Tests aircraft missile and bomb rotary launchers, aircraft missile pylons, and subcomponents. Replaces subcomponents, cabling, pneumatic systems, and all associated hardware. Test and repairs subcomponents to circuit card level.

(k) *Operates, maintains, and calibrates automatic and manual test equipment*. Maintains electronics systems test sets, test adapter groups, aircraft missile, launcher, and pylon simulators; missile radar altimeter test assemblies; cooling control units; and related peripheral equipment. Maintains portable aircraft and missile systems test equipment. Operates precision power supplies, voltage-current measuring equipment, radio frequency and pulse generating control and measuring equipment, calibration standards, oscilloscopes, and related equipment.

(l) *Compiles, reviews, analyzes, maintains, and disseminates maintenance and historical data for missiles, components, and carrier aircraft missile integration systems*. Tracks system performance to identify adverse trends. Reports analysis findings and total system performance data to higher headquarters. Manages missile system configuration and modification status. Keeps maintenance supervisor appraised of system performance and any developing trends.

(m) *Supervises maintenance functions.* Provides technical expertise to resolve complex system malfunctions. Establishes work methods and performance standards. Ensures required equipment, tools, and supplies are available. Ensures compliance with technical directives. Ensures understanding and compliance with missile, nuclear, and explosives safety.

c. Missile and Space Systems Superintendent/Chief Enlisted Manager (2M090/00).

(1) Specialty Summary. Superintends maintenance, processing, acquisition, and operation of missiles, UAVs, spacelift boosters, payloads, and associated subsystems, facilities, support and test equipment. Superintends the activities associated with specialized R&D systems. Superintends maintenance activities engaged in on- and off-equipment maintenance of strategic bomber-launched missiles, aircraft missile and bomb rotary launchers, aircraft stores management systems, and associated test equipment.

(2) Duties and Responsibilities.

(a) *Plans and organizes missile, UAV, spacelift booster, payload, cruise missile, and R&D maintenance and processing activities. Manages processing activities.* Develops organizational structure to establish lines of authority, and assigns specific responsibilities. Determines materiel and personnel requirements for current and projected commitments.

Establishes work procedures for effective personnel use and increased efficiency and accuracy of operation. Analyzes inspection and test reports, and recommends product improvement. Requisitions and accounts for equipment, facilities, special tools, and supplies. Coordinates missile, booster, and payload maintenance and launch processing activities with base organizations. Manages acquisition and activation activities. Monitors engineers and technicians during R&D experiments for procedural compliance. Superintends ICBM coding operations and activities at missile alert facilities.

(b) *Directs missile maintenance, booster and payload launch processing, cruise missile, and R&D activities.* Controls work flow, assigns special projects, and monitors program and special project progress. Monitors unit and individual productivity and work quality. Evaluates unit performance in terms of compliance with policies, directives, technical publications, and hazardous materials operations. Ensures conformance with prescribed efficiency, quality, and training standards. Supervises preparing and maintaining records and reports. Explains maintenance, operations, inspection, test, repair, and launch processing policies, procedures, and technical directives. Advises supervisors of missile, UAV, and spacelift systems, facilities, and personnel capabilities to meet requirements.

(c) *Inspects missile, UAV, booster, payload, cruise missile, and R&D maintenance and processing functions.* Inspects and evaluates missile maintenance activities. Inspects and evaluates booster and payload maintenance and processing activities. Interprets efficiency and equipment reliability findings and recommends improvements. Reviews maintenance and processing data to evaluate programs and project requirements and capabilities. Analyzes unit records and reports for correcting or improving recurring malfunctions in missile, UAV, booster, and payload systems, subsystems, components, and related equipment. Coordinates inspection findings with other support agencies.

(d) *Manages maintenance, operations and R&D training*. Oversees the management and the integration of all training activities. Interprets and determines essential training requirements. Coordinates unit training requirements with all activities. Evaluates unit's training in terms of compliance with policies, directives and technical publications.

(e) *Manages maintenance activities to ensure compliance with international treaties.*

3. **Skill/Career Progression**. Quality training and timely progression from the apprentice to the superintendent skill level play an extremely important role in the Air Force's ability to accomplish its mission. Therefore, it's essential everyone involved in the training process do his or her part to plan, develop, manage, conduct, and evaluate an effective and efficient training program. The guidance provided in this part of the CFETP will ensure individuals receive viable training at appropriate points in their career. The following narrative and the AFSC 2M0X1 career field flowcharts identify the training career path and define training required.

a. Apprentice (3-skill level) Training. Initial skills training in this specialty consists of tasks and knowledge training provided in the Electronics Principles Course and Missile and Space Systems Electronics Apprentice (ICBM or ALMM) Courses (depending on the 3-skill level

shred). Individuals must successfully complete these initial skills training courses to be awarded the 3-skill level.

b. Journeyman (5-skill level) Training. Upgrade training to the 5-skill level in the Missile and Space Systems Electronics specialty consists of: (1) completion of mandatory requirements identified in AFI 36-2201, (2) completion of knowledge training provided in the 2M051 CDC, and (3) qualification on applicable 5-level core tasks identified in Part II, Section A5, of this plan. After award of the 5-skill level, continuation training, when available, should be utilized based on an individual's particular duty position or other needs. Continuation training is listed in, but not limited to that described in Part II, Section C, of this plan.

c. Craftsman (7-skill level) Training. Upgrade training to the 7-skill level in the Missile and Space Systems Electronics specialty consists of: (1) completion of mandatory requirements identified in AFI 36-2201, (2) completion of knowledge training provided in the 2M071 CDC, and (3) qualification on applicable 7-level core tasks identified in Part II, Section A5, of this plan. After award of the 7-skill level, continuation training, when available, should be utilized based on an individual's particular training needs. Continuation training is listed in, but not limited to that described in Part II, Section C, of this plan.

d. Superintendent (9-skill level) Training. Upgrade training to the 9-skill level as a Missile and Space Systems Superintendent is accomplished by completion of requirements identified in AFI 36-2201. No additional requirements were identified for upgrade to AFSC 2M090. Continuation training, if available, should be utilized based on an individual's particular needs.

4. **Training Decisions**. The CFETP was developed to encapsulate an entire spectrum of training requirements for the Missile and Space Systems Electronics specialty using a building block approach (simple to complex). Included in the spectrum was the strategy of when, where, and how to meet the training requirements. The strategy must be apparent and affordable to make it easier to comply with and reduce duplication of training. To do this, a realignment of present training is required. The following training decisions were made at the U&TWs held at Vandenberg AFB CA, 20 - 30 Sep 93 and 31 Jul - 4 Aug 95, and an ICBM Training Conference held at Peterson AFB, CO, 21-22 Feb 96. In addition there were Training Conferences conducted 23-26 Mar 98 and 23-25 Feb 99. Most recent U&TW was conducted 16/17 Aug 99.

a. Initial skills: The STS was rewritten to include tasks that were previously not identified prior to the AFSC mergers effective October, 1993 and April, 1994. All initial skills tasks were reviewed to include these functions. (20 - 30 Sep 93)

b. Upgrade training: In addition to Year of Training initiatives, the following decisions were made regarding AFSC 2M0X1:

(1) 5 level upgrade - All tech school graduates will be assigned to an operational missile (ICBM or Cruise missile) unit to complete 5-level core task training requirements. Core tasks for upgrade to the 5-skill level will consist of Electro-Mechanical Team (EMT) at ICBM units and Missile Maintenance Section tasks at Cruise missile units. ELAB and VACE tasks were discussed and a decision was reached to exclude them from the core task listing, placing the

focus of five level training on field dispatching (ICBM) or in-shop air vehicle maintenance (cruise missiles). Training in these workcenters builds a foundation for subsequent progression into all other areas of the 2M0X1 career field. All applicable 5-level core task training must be completed prior to reassignment to a unit that does not possess 5-level core task training capability. (20 - 30 Sep 93)

(2) 7 level upgrade - Core tasks for upgrade to 7-level must be accomplished at an ICBM or Cruise missile unit. Personnel assigned to ICBM units will complete all required core tasks in both Electro-mechanical team (EMT) **and** Electronics Laboratory (ELAB) for the assigned weapon system. Individuals assigned to missile units with multiple weapon systems (including Vandenberg AFB) are required to complete core task training for one of the assigned weapon systems. In this case, local training managers will select the appropriate weapon system to satisfy upgrade requirements. Personnel assigned to Cruise missile units will complete all required core tasks in either Missile Checkout **or** Verification and Checkout Equipment (VACE). (20 - 30 Sep 93)

c. Personnel who were awarded the 5-skill level or 7-skill level prior to implementation of the Year of Training (YOT) initiatives **are not** required to complete core tasks for that awarded skill level unless required for current duty position. Individuals are highly encouraged to complete these core tasks, if possible. Personnel upgrading after the implementation of YOT initiatives must complete all upgrade training requirements, including core tasks. This decision was based on the overwhelming training burden that would result if personnel previously awarded 5-and 7-skill levels were required to return to training. Additionally, many personnel are located at units which could not comply with current core tasks identified by this U&TW (20-30 Sep 93).

Note-Personnel must possess a 5-level and complete required 7-level core tasks prior to being eligible for assignment to spacelift and R&D units, or other positions that do not have the training capability to provide required core task training.

d. Mission Ready Technician (MRT) Program: After the 2M0XX U&TW met 31 Jul - 4 Aug 95, the 2M0XX community was directed to incorporate the MRT concept in its 3-level technical training. The Air Force MRT Program is designed to shift the training burden from the operational units to the technical school by producing certified 3-level apprentice personnel directly from technical school. Upon arrival at their first duty station, a mission ready trained apprentice may be utilized on those 3-level tasks certified at the technical school in minimum time. An ICBM MRT conference was held with representatives from all units to identify MRT 3-level tasks to be trained and certified by the technical school. Certification of these 3-level tasks by technical school instructors resulted in a significant increase in training days to the original U&TW. This and the MRT concept drove the group to reevaluate the STS requirements identified at the previous U&TW resulting in changes to the STS. All subjects and tasks were still covered; however, some were deleted from the basic course if they could be covered in the CDC. (21-22 Feb 96)

e. Mission Ready Technician (MRT) Program: After the Feb 98 AETC Trained Personnel Requirements (TPR) conference, a decision was made to revise the 2M0X1 Specialty Training Standards (STS). The existing MRT training courses cannot produce a sufficient amount of graduates to sustain the career field. Air Force Space Command (AFSPC) redefned MRT training requirements. (23-26 Mar 98)

f. Mission Ready Technician (MRT) will now be identified as a Mission Ready Airman (MRA). All 2M0XX specialty and course training standards were reviewed and revised. Seven -level in residence courses will be discontinued at Vandenberg AFB effective Mar 99. Space Launch Maintenance Training Course will be discontinued at Vandenberg AFB effective Sep 99. (23-25 Feb 99)

g. Career Field Manager directed a review of the 2M0XX technical training courses. The Technical Engineering B/CDB course will be discontinued in residence at Vandenberg AFB effective Sep 00. The Wing VI information will be converted to Wing IX, enhanced and moved to the AM/CDB course effective Oct 00. Career Development Courses (CDCs) were reviewed in-depth. A new Electronic Principles (EP) STS is scheduled to be implemented Oct 00. 20 AF will create a course for new shop chiefs incorporating the 532d Training Squadron's discontinued 7-level course material. (16-17 Aug 99)

5. **Community College of the Air Force Academic Programs**. Enrollment in CCAF occurs upon completion of basic military training. *Off duty education is a personal choice but highly encouraged*. Individuals desiring to become an Air Education and Training Command Instructor should actively pursue an associate degree. A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools. CCAF provides the opportunity to obtain an Associate in Applied Sciences Degree. In addition to its associate degree program, CCAF offers the following:

a. Occupational Instructor Certification. Upon completion of instructor qualification training, consisting of an instructor methods course and supervised practice teaching, CCAF instructors who possess an associates degree or higher may be nominated by their school commander/commandant for certification as an Occupational Instructor.

b. Trade Skill Certification. When a CCAF student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The College uses a competency based assessment process for trade skill certification at one of four proficiency levels - Apprentice, Journeyman, Craftsman/Supervisor, or Master Craftsman/Manager. All are transcribed on the CCAF transcript.

c. Degree Requirements. The skilled (5) level must be held at the time of program completion with degree requirements for an Associate in Applied Science in Electronic Systems Technology as follows:

OVERALL REQUIREMENTS

Subject	*Semester Hours*
Technical Education	24
Leadership, Management, and Military Studies	6
Physical Education	4
General Education	15
Program Elective	15
Total	**64**

d. Technical Education (24 Semester Hours): A minimum of 12 semester hours of Technical Core subjects/courses must be applied and the remaining semester hours applied from Technical Core/Technical Elective subjects/courses. Requests to substitute subjects/courses must be approved in advance by the Technical Branch. Refer to the CCAF catalog for Application of Courses to the Technical Education area.

Technical Core

Subjects/Courses	*Maximum Semester Hours*
CCAF Internship	16
Communication Systems Theory/Maintenance	24
Electronic Communications-Computer Systems Theory/Maintenance	24
Electronic Systems Theory/Maintenance	24
Ground Radar Systems Theory/Maintenance	24
Metrology	24
Missile and Space Systems Electronic Maintenance (ICBM)	19
Missile and Space Systems Electronic Maintenance (ALCM/ACM)	31

Technical Electives

Advanced Electronics	12
Air Force Enlisted Professional Military Education	12
Algebra--Based Physics	4
Basic Electronics Theory/Applications	12
College Algebra (or Higher Level Mathematics)	3
Computer Science	6
Digital Techniques	6
Computer Systems Maintenance and Operations Principles	6
FCC General Radiotelephone Operator's License	9
High Reliability Soldering	3
Industrial Safety	3
Microprocessor Electronic Theory	6
Quality Assurance	3
Solid-State Theory/Applications	6
Technical Writing	3

e. Leadership, Management, And Military Studies (6 Semester Hours): Professional military education and/or civilian management courses. The preferred method of completing Leadership, Management, and Military Studies is through attendance at an Airman Leadership School, MAJCOM NCO Academy, and/or Air Force Senior NCO Academy. However, civilian courses that emphasize fundamentals of managing human or material resources may also be applicable.

f. Physical Education (4 Semester Hours): Basic Military Training satisfies this requirement.

g. General Education (15 Semester Hours): This requirement is satisfied by application of courses accepted in transfer or by testing credit. The following is a specific breakout of requirements:

Subjects/Courses	*Semester Hours*
Oral Communication (Speech)	3
Written communication (English Composition)	3
Mathematics	3
Intermediate algebra or a college-level mathematics course is required. If an acceptable mathematics course is applied as a Technical or Program Elective, a natural science course meeting general education requirements Application criteria may be applied as a General Education Requirement.	
Social Science	3
Anthropology, Archeology, Economics, Geography, Government, History, Political Science, Psychology, Sociology.	
Humanities	3
Fine Arts (History, Criticism, and Appreciation), Foreign Language, Literature, Philosophy, Religion.	

h. Program Elective (15 Semester Hours): Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education subjects/courses, including natural science courses meeting general education requirements application criteria. Six semester hours of CCAF degree-applicable technical credit, otherwise not applicable to this program, may be applied.

6. **Career Field Flow Charts**. Charts depicting this career path are presented. The Career path outlines when training is required for career progression within this specialty. This is a nominal timeline for comparison purposes only.

2M0X1 MISSILE AND SPACE SYSTEMS ELECTRONICS SPECIALTY TRAINING FLOW

6 MONTHS

- COMPLETE 3-LEVEL COURSES
  - -- ELECTRONIC PRINCIPLES
  - -- ICBM/CRUISE MISSILE TECH SCHOOL
- AWARD 3-LEVEL
- AWARD OF BASIC MISSILE BADGE

12 MONTHS	- ENROLL IN 5-LEVEL CDC - BEGIN 5-LEVEL CORE TASK TRAINING
24 MONTHS	- COMPLETE CDC - COMPLETE CORE TASK TRAINING
36 MONTHS	- PROMOTE E-4/AWARD 5-LEVEL - ADDITIONAL CONTINUATION TRAINING
48 MONTHS	- AIRMAN LEADERSHIP SCHOOL - TRAINER DUTIES
6.5 YEARS	- PROMOTION TO E-5 - BEGIN 7-LEVEL CORE TASK TRAINING - BEGIN 7-LEVEL CDCs
8 YEARS	- 18 MONTHS TIG AS SSGT - COMPLETE 7-LEVEL CDCs - COMPLETE CORE TASK TRAINING
11 YEARS	- SELECTION FOR PROMOTION TO E-6 - AWARD 7-LEVEL - NCO ACADEMY - AWARD OF SENIOR MISSILE BADGE
14 YEARS	- SELECTION FOR PROMOTION TO E-7 - ADVANCED TRAINING COURSES
16 YEARS	- AWARD OF MASTER MISSILE BADGE
18 YEARS	- SELECTION FOR PROMOTION TO E-8 - SENIOR NCO ACADEMY - AWARD 9-LEVEL
23 YEARS	- SELECTION FOR PROMOTION TO E-9

Part I
Section C - SKILL LEVEL TRAINING REQUIREMENTS

1. **Purpose**. The various skill levels in the career field are defined in terms of tasks and knowledge requirements for each skill level in the missile and space systems Electronics Specialty. They are stated in broad, general terms and establish the standards of performance. The specific task and knowledge training requirements are identified in the STS.

2. **Missile and Space Systems Electronics Apprentice (3-skill level).**

a. Specialty Qualifications.

(1) Knowledge. Knowledge is desirable of electronic theory, circuitry, and schematic diagrams.

(2) Education. Completion of high school with courses in mathematics and physics is desirable.

(3) Training. The following requirements are mandatory for award of the three skill level:

(a) Completion of the in-residence Electronics Principles course.

(b) Completion of either the in-residence ICBM Missile Systems Electronics Apprentice course or the in-residence Air Launched Missile Systems Electronics Apprentice Course.

(c) Initial shotgun qualification (2M031A only).

(4) Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M0X1. Normal color vision and depth perception as defined in AFI 48-143 is mandatory for entry into this AFSC. Eligibility for a Top Secret security clearance according to AFI 31-501 is mandatory for award of the 2M031A and 2M031B. Eligibility for Personnel Reliability Program certification IAW AFI 36-2104 is mandatory to complete core requirements and upgrade to the 5-skill level.

b. Training Sources/Resources. Completion of one of the basic Missile and Space Systems Electronics Courses at Vandenberg AFB, CA satisfies the knowledge and training requirements for the award of the 3-skill level. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

3. **Missile and Space Systems Electronics Journeyman (5-skill level).**

a. Specialty qualifications.

(1) Knowledge. Knowledge is mandatory of electronic theory, circuitry, and schematic diagrams.

(2) Education. Completion of high school with courses in mathematics and physics is desirable.

(3) Training. The following requirements are mandatory for award of the 5-skill level:

(a) Completion of mandatory requirements in AFI 36-2201.

(b) Completion of the 5-skill level CDC 2M051.

(c) Qualification on applicable 5-skill level core tasks for the assigned weapon system.

(4) Experience. Experience is mandatory in electro-mechanical team tasks or in Cruise missile maintenance tasks.

(5) Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M0X1. Normal color vision and depth perception as defined in AFI 48-143 is mandatory for entry into this AFSC. Eligibility for a Top Secret security clearance according to AFI 31-501 is mandatory for award and a Secret security clearance for retention of this AFSC. Eligibility for Personnel Reliability Program certification IAW AFI 36-2104 is mandatory to complete core requirements and upgrade to the 5-skill level.

b. Five level core tasks - All 2M031A and 2M031B personnel will be qualified/certified on the applicable core tasks before being awarded a 5 skill-level. See the appropriate portion of the STS for a list of core tasks.

(1) 2M051 Core Tasks (ICBM). All 2M031A personnel will complete mandatory 2M051 core tasks listed in attachment 2 of the 2M051/2M071 STS.

(2) 2M051 Core Tasks (CM). All 2M031B personnel will complete mandatory 2M051 core tasks are listed in attachment 4 of the 2M051/2M071 STS.

c. Training Sources/Resources. The STS identifies all the core tasks required for qualification in the individual's weapon system. Qualified trainers provide UGT and QT. Continuation (Advanced) training courses are available and individuals should attend based on training needs and duty position requirements. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

d. Implementation. Entry into upgrade training may be initiated when an individual possesses the 3-skill level and has been assigned to the base. Then, the individual may be enrolled in the 2M051 CDC upon recommendation of the supervisor. Qualification training is initiated any time an individual is assigned duties he/she is not qualified to perform.

4. **Missile and Space Systems Electronics Craftsman (7-skill level).**

a. Specialty Qualifications.

(1) Knowledge. Knowledge is mandatory of electronic systems that apply to missiles, UAVs, spacelift boosters, payloads, cruise missiles, Research and Development systems, associated launch systems, and aerospace ground equipment; electronic theory, circuitry, schematic diagrams.

(2) Education. To assume the grade of SSgt and MSgt, individuals must be graduates of the Airman Leadership School and NCO Academy, respectively.

(3) Training. The following requirements are mandatory for award of the 7-skill level:

(a) Completion of mandatory requirements in AFI 36-2201.

(b) Completion of the 7-skill level CDC 2M071.

(c) Qualification on all applicable 7-skill level core tasks for the assigned weapon system.

(4) Experience. Qualification is mandatory as a Missile and Space Systems Electronics Journeyman. Also, experience is mandatory in performing or supervising functions in 2M0X1 production workcenters.

(5) Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M0X1. Normal color vision and depth perception as defined in AFI 48-143 is mandatory for entry into this AFSC. Eligibility for a Secret security clearance according to AFI 31-501 is mandatory for award and retention of this AFSC.

b. Seven level core tasks - All 2M051 personnel will be qualified/certified on the applicable core tasks before being awarded a 7 skill-level. See the appropriate portion of the STS in part II, section C for a list of core tasks.

Note-Personnel must possess a 5-level and complete required 7-level core tasks prior to being eligible for assignment to spacelift and R&D units, or other positions that do not have the training capability to provide required core task training.

(1) 2M071 Core Tasks (ICBM). Mandatory core tasks for 2M0X1s assigned to ICBM units are listed in attachment 2 of the 2M051/2M071 STS. Due to system and equipment limitations at Vandenberg AFB, the following STS tasks are not required for 7-level core task training: 10b(3), 10b(5), 11b(3), 11b(5), 12b(3), 12b(5), and 19i.

(2) 2M071 Core Tasks (CM). Mandatory core tasks for 2M0X1s assigned to cruise missile units are listed in attachment 4 of the 2M051/2M071 STS. Completion of either VACE or Missile Checkout tasks will satisfy 7-level core task training requirements for personnel assigned to air launched missile units.

(a) VACE core tasks are identified in attachment 4, items 6 through 12.

(b) Missile Checkout core tasks are identified in attachment 4, items 1 through 5.

c. Training Sources/Resources. The STS identifies all the core tasks required for qualification in the individual's duty position. Qualified trainers provide UGT and QT.

Continuation (Advanced) training courses are available and individuals should attend based on training needs and duty position requirements. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

d. Implementation. Entry into upgrade training is initiated when an individual possesses the 5-skill level and has been selected for promotion to the grade of SSgt. Qualification training is initiated any time an individual is assigned duties he/she is not qualified to perform.

5. **Missile and Space Systems Superintendent (9-skill level).**

a. Specialty Qualifications.

(1) Knowledge. Possess advanced skills and knowledge of ICBM, Cruise missiles, R&D systems, and Spacelift operations.

(2) Education. To assume the grade of CMSgt, individuals must be graduates of the Senior NCO Academy.

(3) Training. Completion of mandatory requirements in AFI 36-2201.

(4) Experience. Qualification as one of the following is mandatory: Missile and Space Systems Electronics Craftsman, Missile and Space Systems Maintenance Craftsman, or Missile and Space Systems Facilities Craftsman.

(5) Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M090. Normal color vision as defined in AFI 48-143 is mandatory for entry into this AFSC. Eligibility for a Secret security clearance according to AFI 31-501 is mandatory for award and retention of this AFSC.

b. Training Sources/Resources. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

c. Implementation. Entry into OJT is initiated when an individual possesses the 7-skill level and is a SMSgt selectee. Qualification training is initiated any time an individual is assigned duties he/she is not qualified to perform.

PART I
Section D - RESOURCE CONSTRAINTS

1. **Purpose**. This section of CFETP identifies known resource constraints which preclude minimal/desired training from being developed or conducted. This section includes a narrative explanation of each resource constraint and impact statement describing what effect each constraint has on training. Also identified in this section are the resources needed to satisfy training requirements, include information such as part numbers, national stock numbers, number of units required, cost, manpower, etc. Finally, this section includes action required, identifies

the OPR, and establishes target completion dates. Resource constraints will be, at a minimum, reviewed and updated annually.

None identified.

PART II
Section A - SPECIALTY TRAINING STANDARDS

1. **Purpose**. This section identifies the specific task and knowledge training requirements required for personnel to be awarded specific skill levels and perform duties in AFSC 2M0X1. This section contains:

a. Section A1 - The Proficiency Code Keys**.** The proficiency code key is used to indicate level of training and knowledge provided by resident training and career development courses. This proficiency code key applies to the training standards in section A2 through A5.

b. Section A2 - The Course Training Standard for the Electronic Principles Course. This course is a prerequisite for all personnel attending either the in-residence ICBM Missile Systems Electronics Apprentice course or the in-residence Air Launched Missile Systems Electronics Apprentice course.

c. Section A3 - The STS for the Missile Systems Electronics Apprentice course. The 2M031A STS identifies the task and knowledge requirements used to develop this course.

d. Section A4 - The STS for the Air Launched Missile Systems Electronics Apprentice course. The 2M031B STS identifies the task and knowledge requirements used to develop this course.

e. Section A5 - The STS for AFSCs 2M051/2M071. The 2M051/2M071 STS identifies the task and knowledge requirements for development of the 5-and 7-level CDCs for the 2M0X1 career field. Attachments to the 2M051/2M071 STS list the qualification tasks for specific weapon systems/duties of the 2M0X1 career field. These attachments also identify the core tasks and any critical tasks.

2. Qualification training will be documented on the appropriate attachment of the 2M051/2M071 STS unless the AFCFM has approved the use of other training systems to document and manage the training of 2M0X1 personnel.

Part II
Section A1

PROFICIENCY CODE KEY		
	SCALE VALUE	**DEFINITION: THE INDIVIDUAL**
	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
TASK PERFORMANCE	**2**	Can do most parts of the task. Needs help only on hardest parts. (PARTIALLY PROFICIENT)
LEVELS	**3**	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
TASK	**b**	Can determine step by step procedures for doing the task. (PROCEDURES)
KNOWLEDGE LEVELS	**c**	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
	A	Can identify basic facts and terms about the subject. (FACTS)
SUBJECT KNOWLEDGE	**B**	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
LEVELS	**C**	Can analyze facts and principles and draw conclusions about the subject (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

EXPLANATIONS

* A task knowledge value may be used alone or with a task performance scale value to define a level of a specific task. (Examples: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common in several tasks.

\- This mark is used alone instead of a scale to show that no proficiency training is provided in the course or CDC.

X This mark is used in course columns to show that training is required but not given due to limitations in resources.

PART II
Section A2

DEPARTMENT OF THE AIR FORCE .....CTS L3ATR40020 002
37 Training Group ..... PDS Code (See Paragraph 2)
Lackland Air Force Base, Texas 78236-5417 .....21 September 1999

ELECTRONIC PRINCIPLES
Condensed Course

1. Implementation of training in support of this CTS is with the first class after 1 October 2000.

2. Purpose. This course training standard:

a. Establishes the training requirements using tasks, knowledge, and proficiency levels of training for the following courses:

PDS Code PO4 (34 days):
L3AQR2A331A 332 (PDS Code PO4)
L3AQR2A331B 332 (PDS Code PO4)
L3AQR2A331C 332 (PDS Code PO4)
L3AQR2A332 332 (PDS Code PO4)
L3AQR2A533A 332 (PDS Code PO4)
L3AQR2A533A 333 (PDS Code PO4)
L3AQR2A533B 332 (PDS Code PO4)
L3AQR2A533C 332 (PDS Code PO4)
L3AQR2M031A 332 (PDS Code PO4)
L3AQR2M031B 332 (PDS Code PO4)
L3AQR2M033A 332 (PDS Code PO4)

PDS Code PO5 (31 days):
L3AQR2A131 301 (PDS Code PO5)
L3AQR2A131 302 (PDS Code PO5)

PDS Code PO6 (7 days):
L3AQR2MO32A 701 (PDS Code PO6)

b. Provides the basis for the development of more detailed training materials, training objectives, and training evaluation instruments for the course.

c. Is derived from the Course Training Standard for the Electronic Principles Master Course L3ATR40020 001. The Master Course CTS permanently replaces the Electronics Fundamentals and Applications (EF&A) listing dated June 1996.

DEPARTMENT OF THE AIR FORCE .....CTS L3ATR40020 002
37 Training Group ..... PDS Code (See Paragraph 2)
Lackland Air Force Base, Texas 78236-5417 .....21 September 1999

3. Course description. This course provides training in the knowledge and skills needed to perform the duties of maintenance personnel for several AFSCs. This course also trains selected DOD and International Military personnel, and is the prerequisite for follow-on courses either at Sheppard or Vandenberg AFB. The scope of training includes safety, first aid, Direct Current (DC) principles, Alternating Current (AC) principles, semiconductors, power supplies, amplifiers, waveshaping circuits, digital circuits, computer fundamentals, and soldering. The training day for this course is an 8-hour training day for each student. The scope of training is tailored to the prerequisites of the AFSCs. Trainees must be assigned as a student in one of the following AFSCs: 2A331X, 2A332, 2A533X, 2M031X, 2M032A, or 2M033A, international students destined for 2A131 factory training, or the civilian or other military equivalent. Specific course content is identified on the attached training matrix. AFSCs identified in previous EP Training Plans but not reflected above will be trained in the EP Master Course, L3ATR40020-001, which has its own Training Plan and CTS. There is one exception. Effective 1 October 2000, the 2E631 career field will merge into the 2E632 AFSC. Therefore 2E631 training will be discontinued after 1 October 2000.

4. Qualitative requirements: Attachment 1 contains the tasks, knowledge, and proficiency levels referenced in paragraph 2. Columns are marked with a proficiency code to indicate subjects taught. Trainees without prerequisites specified in AFCAT 36-2223 cannot be expected to meet proficiency levels indicated.

Recommendations: Comments and recommendations are invited concerning quality of AETC training. Reference this CTS and address correspondence regarding changes to 37 Training Group/TTS, 1000 Mercury Drive, Lackland AFB, TX 78236-5717. Return the Field Evaluation Questionnaire (FEQ), to identify unsatisfactory performance of individual graduates. A Customer Service Information Line has been installed for the supervisor's convenience to identify graduates who may have received over or under training on task/knowledge items listed in this training standard. For a quick response to problems, call our Customer Service Information Line, DSN 473-2917, anytime day or night.

OFFICIAL

KENNETH M. FREEMAN, Colonel, USAF
Commander

JESSE JOHNSON, MSgt, USAF
Chief, Group IM

2 Attachments
1. Qualitative Requirements
2. Task Listing

Supersedes: None
Prepared by: 342 TRS/DOR
Distribution: See page i

QUALITATIVE REQUIREMENTS

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION: The individual
Task Performance Levels	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
***Task Knowledge**	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (COMPLETE THEORY)
****Subject Knowledge**	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

EXPLANATIONS

* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Examples: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.

X This mark is used alone instead of a scale value to show that no proficiency training is provided in the course.

\- This mark is used alone in course columns to show that training is required but not given due to limitations in resources.

Distribution:
HQ AETC/XPMRT, Randolph AFB TX
HQ 2AF/DOP, Keesler AFB MS
37 TRW/MQ, Lackland AFB TX;
37 TRW/SE, Lackland AFB TX
37 TRSS/DOR, Lackland AFB TX
342 TRS/DORM, Lackland AFB, TX
342 TRS/TTEP, Lackland AFB TX
365 TRS, Sheppard AFB TX
532 TRS, Vandenberg AFB, CA

AETC FORM 60, JUL 93 REPLACES ATC FORM 60, WHICH IS OBSOLETE.

QUALITATIVE REQUIREMENTS

	P04	P05	P06
ELECTRONICS SUPPORT SUBJECTS			
1.1. Safety	B	B	B
1.2. First Aid	B	B	B
1.3. Electrostatic Discharge (ESD) Control	B	B	-
1.4. Electromagnetic Effects (EMP/EMI)	B	B	-
1.5. Metric Notation			
1.5.1. Powers of Ten	B	B	B
1.5.2. Electrical Prefixes	B	B	B
2. USE TEST EQUIPMENT			
2.1. Analog Multimeter	2b	2b	2b
2.2. Digital Multimeter	2b	2b	2b
2.3. Oscilloscope	-	-	-
2.4. Signal Generator	-	-	-
3. BASIC CIRCUITS			
3.1. Direct Current (DC)			
3.1.1. Terms	B	B	B
3.1.2. Theory	B	B	B
3.1.3. Calculations	B	B	B
3.2. Alternating Current (AC)			
3.2.1. Terms	B	B	-
3.2.2. Calculations	B	B	-
4. BASIC CIRCUIT COMPONENTS			
4.1. Resistors			
4.1.1. Theory	B	B	B
4.1.2. Color Code	B	B	B
4.1.3. Troubleshoot	2b	2b	2b
4.2. Inductors			
4.2.1. Theory	B	B	-
4.2.2. Troubleshoot	2b	2b	-
4.3. Capacitors			
4.3.1. Theory	B	B	-
4.3.2. Troubleshoot	2b	2b	-
4.4. Resistive-Capacitive-Inductive (RCL) Circuits Theory			
4.4.1. Basic	-	-	-
4.4.2. Resonant	-	-	-
4.4.3. Frequency Sensitive Filter	-	-	-

	P04	P05	P06
5. ELECTROMAGNETIC DEVICES			
5.1. Transformers			
5.1.1. Theory	B	B	-
5.1.2. Troubleshoot	2b	2b	-
5.2. Relays and Solenoids			
5.2.1. Theory	B	B	-
5.2.2. Troubleshoot Relays	2b	2b	-
5.3. Motor Theory			
5.3.1. Direct Current (DC)	B	B	-
5.3.2. Alternating Current (AC)	B	B	-
5.4. Generator Theory			
5.4.1. Direct Current (DC)	B	B	-
5.4.2. Alternating Current (AC)	B	B	-
5.5. Synchro/Servo			
5.5.1. Theory	B	B	-
5.5.2. Fault Isolate	b	b	-
5.6. Transducer Theory	B	B	-
6. SOLID STATE DEVICES			
6.1. Diodes			
6.1.1. Theory	B	B	-
6.1.2. Troubleshoot	2b	2b	-
6.2. Bipolar Junction Transistors			
6.2.1. Theory	B	B	-
6.2.2. Troubleshoot	2b	2b	-
6.3. Special Purpose Device Theory			
6.3.1. Zener Diode	B	B	-
6.3.2. Light Emitting Diode (LED)	B	B	-
6.3.3. Liquid Crystal Display (LCD)	B	B	-
6.3.4. Integrated Circuits (IC)	B	B	-
6.3.5. Metal Oxide Semiconductor Field Effect Transistor (MOSFET)	-	-	-
6.3.6. Operational Amplifiers	-	-	-
7. TRANSISTOR AMPLIFIER CIRCUITS			
7.1. Theory	-	-	-
7.2. Stabilization	-	-	-
7.3. Coupling	-	-	-
7.4. Troubleshoot	-	-	-

	P04	P05	P06
8. POWER SUPPLY CIRCUITS			
8.1. Theory			
8.1.1. Rectifiers	B	B	-
8.1.2. Filters	B	B	-
8.1.3. Voltage Regulators	B	B	-
8.2. Troubleshoot	-	-	-
9. WAVE GENERATING CIRCUITS			
9.1. Theory			
9.1.1. Oscillators	B	B	-
9.1.2. Multivibrators	B	B	-
9.1.3. Waveshaping Circuits	B	B	-
9.2. Fault Isolate	-	-	-
10. DIGITAL NUMBERING SYSTEMS			
10.1. Conversions			
10.1.1. Binary	B	B	-
10.1.2. Octal	B	B	-
10.1.3. Hexadecimal	B	B	-
10.1.4. Binary Coded Decimal	B	B	-
10.2. Binary Math Operations	B	B	-
11. DIGITAL LOGIC CIRCUITS			
11.1. Theory			
11.1.1. Gates	B	B	-
11.1.2. Flip-flops	B	B	-
11.1.3. Counters	-	-	-
11.1.4. Registers	-	-	-
11.1.5. Combinational Logic Circuits	-	-	-
11.2. Troubleshoot	-	-	-
11.3. Digital to Analog (DA) and Analog to Digital (AD) Convertors Theory	A	A	-
12. BASIC COMPUTER FUNDAMENTALS			
12.1. Computer Theory			
12.1.1. Hardware	B	B	-
12.1.2. Software			
12.1.2.1. Operating Systems	B	B	-
12.1.2.2. Virus Protection	B	B	-
12.1.2.3. Diagnostics	B	B	-
12.1.2.4. Applications	B	B	-

	P04	P05	P06
12.1.3. Peripherals	B	B	-
12.2. Network Theory			
12.2.1. Components	-	-	-
12.2.2. Types	-	-	-
12.2.3. Topologies	-	-	-
12.2.4. Communication Mediums	-	-	-
13. BASIC COMMUNICATIONS THEORY			
13.1. Antenna	B	B	-
13.2. Transmission Lines	B	B	-
13.3. Waveguides	B	B	-
13.4. Transmitters			
13.4.1. Amplitude Modulation (AM)	B	B	-
13.4.2. Frequency Modulation (FM)	B	B	-
13.5. Receivers			
13.5.1. Amplitude Modulation (AM)	B	B	-
13.5.2. Frequency Modulation (FM)	B	B	-
14. SOLDER AND DESOLDER			
14.1. Terminal Connection	2b	-	-
14.2. Printed Circuit Board (PCB)	2b	-	-
14.3. Multipin Connector	2b	-	-
14.4. Coaxial Connector	2b	-	-
15. ASSEMBLE SOLDERLESS CONNECTORS			
15.1. Crimped Connection	2b	-	-
15.2. Coaxial Connector	2b	-	-
15.3. Multipin Connector	2b	-	-

Trainee/Trainer/Certifier Identification Table

THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY		
NAME OF TRAINEE		
PRINTED NAME (*LAST, FIRST, MIDDLE INITIAL*)	INITIALS (*WRITTEN*)	SSAN
PRINTED NAME OF TRAINING/CERTIFYING OFFICIAL AND WRITTEN INITIALS		
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	

PART II
Section A3

AFSC 2M031A
SPECIALTY TRAINING STANDARD (STS)

1. **Purpose.** As prescribed in AFI 36-2201 this STS:

a. Lists the tasks, knowledge, and technical references (TR) necessary for airmen to be awarded the 3-skill level in the 2M031A Missile and Space Systems Electronics ladder of the Missile and Space Systems Career Field. These are based on an analysis of the duties in AFI 36-2108. Those tasks marked with an asterisk (*) will be trained in the resident wartime initial skills course.

Note: Users are responsible for annotating training references to identify current references pending STS revision.

b. Show formal training requirements. The basic STS shows the level to which the Technical Training Unit for course 2M031A as described in ETCA, located on the HQ 2AF website has accomplished task/knowledge training. When two codes are used in the same task proficiency column, the first code is the established requirement for resident training on the task/knowledge, and the second code indicates the level of training provided in the course due to equipment shortages or other resource constraints.

2. **Proficiency Code Keys.** The proficiency code key is used to indicate level of training and knowledge provided by resident training and career development courses.

3. **Recommendations.** Report unsatisfactory performance of individual course graduates using AF Form 1284 as prescribed in AFI 36-2201. Report inadequacies and suggested corrections to this STS to the 2M0XX AFCFM through the MAJCOM functional manager. All approved changes to this CFETP will be forwarded to 532 TRS/DOAT, 597 7th St, Vandenberg AFB, CA, 93437-5305**.**

This STS supersedes AFSC 2M031A STS in CFETP 2M0X1, Parts 1 - 2, 30 June 1996.

MICHAEL E. ZETTLER, Lt General, USAF
DCS/Installations & Logistics

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
1	***AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM***	
	TR: AFI 91-X	
1a	Hazards of AFSC 2M0X1A/B	A
	TR: AFI 91-301	
1b	Safety	A
	TR: TOs 00-25-245, 21-LG118A-2-10, 21M-LGM30G-2-10	
1c	USAF Mishap Prevention Program	A
	TR: AFI 91-202; TO 31-1-141	
1d	Missile safety	A
	TR: AFIs 91-107, 91-114, 91-202	
1e	Nuclear surety	A
	TR: AFIs 91-104, 91-105, 91-202	
1f	Explosive safety	A
	TR: AFIs 91-201, 91-202	
1g	Hazard report	A
	TR: AFI 91-202	
1h	Environmental compliance	-
1h(1)	Overview of hazardous waste	A
	TR: AFIs 32-7041, 32-7042; 40 CFR Part 261, 262; 29 CFR Part 1910	
1h(2)	Hazardous material	-
	TR: 49 CFR Part 107, 120, 172	
1h(2a)	Handler responsibilities	A
1h(2b)	Transportation requirements	A
1h(3)	Hazardous communication	B
	TR: 29 CFR Part 1910; AFOSH 161-21	
1h(4)	Polychlorinated Biphenyls (PCBs)	A
	TR: 40 CFR Part 761	
2	***PUBLICATIONS***	
	TR: AFI 37-X	
2a	Use standard publications	A
2b	Technical order system	-
	TR: AFPD 21-3; TOs 0-1-01, 0-1-02, 00-5-1, 00-5-2	
2b(1)	Description	A
2b(2) *	Use technical orders	3c
2b(3) *	Initiate TO improvement report	A

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
2c *	CEMs	A
	TR: AFSPCIND 0-7, AFSPCI 32-1009	
3 *	***HARDNESS ASSURANCE PROGRAM***	A
	TR: AFI 32-1054; TOs 21-LG118A-2-10, 21M-LGM30G-2-31, 21M-LGM30G-2-10	
4	***COMMON MAINTENANCE PRACTICES***	
	TR: TOs 00-25-234, 1-1A-8, 21-LG118A-2-10, 21M-LGM30G-2-10	
4a *	Use common handtools	3c
	TR: TOs 32-1-2, 32-1-151, 32-2-101	
4b *	Use special tools	3c
	TR: TO 32B14-3-1-101	
4c	Aerospace hardware	B
	TR: TO 1-1A-8, 1-1A-15	
4d	Corrosion identification	A
	TR: TO 1-1-2; AFIs 32-1054, 21-105; AFSPCI 21-1005	
4e	RFI/EMI gaskets	-
	TR: TO 21M-LGM30F-112	
4e(1) *	Inspect	3c
4e(2) *	Repair	2b
4f	Electrostatic Discharge (ESD) Control Procedures	-
	TR: TO 00-25-234	
4f(1)	Perform printed circuit board handling and storage procedures	3c
4f(2)	Perform ESD control procedures	3c
5	***CODE HANDLING PROCEDURES***	A
	TR: AFSPCI 91-1005	
6	***WEAPON SYSTEM DESCRIPTION (WS 133A/B and WS 118A)***	
	TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-10, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-10	
6a	Missile	A
6b	Launch Facility	A
6c	Missile Alert Facility	A
7	***ACCESS SYSTEMS***	
	TR: TOs 21-LG118A-2-19, 21M-LGM30F-2-19	
7a	Description	B
	TR: TOs 21-LG118A-1, 21-LG118A-2-10, 21-LG118A-2-19, 21M-LGM30G-1-1, 21M-LGM30G-2-10	
7b	Electro-mechanical Linear Actuator	-
7b(1) *	Adjust	2b

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
7b(2) *	Troubleshoot	2b
7b(3) *	Repair	2b
7c	Perform security pit door lockout break-in procedures	A
7d	Secondary door	-
7d(1) *	Change lock combination	3c
7d(2)	Troubleshoot	2b
7d(3) *	Repair	2b
7e	Telescoping ladder	-
7e(1) *	Inspect	2b
7e(2) *	Repair	2b
7f	Security pit vault door	-
7f(1) *	Repair	2b
7f(2) *	Troubleshoot	2b
8	***COMMAND AND CONTROL (WS133A/B)***	
	TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X	
8a	Description	B
	TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-1-1X, 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X	
8b	Replace keying variable	3c
	TR: TO 21M-LGM30G-2-12-2	
8c	REACT console	-
8c(1) *	Checkout	2b
8c(2) *	Repair	2b
8c(3) *	Replace circuit card assembly	2b
9	***INTRASITE CABLING SYSTEM (WS133A/B AND WS118A)***	
	TR: TOs 21-LG118A-2-21-(X), 21M-LGM30G-2-1-X, 21M-LGM30G-2-21-X	
9a	Description	B
	TR: TOs 21-LG118A-1, 21-LG118A-2-21, 21M-LGM30G-1-1, 21M-LGM30G-1-1X, 21M-LGM30G-2-1-X, 21M-LGM30G2-21-X	
9b	LF electrical filter assembly	-
9b(1)	Checkout	B
9b(2)	Repair	B
9c	LF electrical surge arrestor	-
9c(1)	Checkout	B
9c(2)	Replace	B
9d	Checkout intrasite cables	B
9e	LF interconnecting box	-

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
9e(1) *	Checkout	B
9e(2) *	Repair	B
10	***MISSILE ALERT FACILITY***	
	TR: TO 21M-LGM30G-2-11	
10a	Launch control center motor generator	-
10a(1) *	Start up and load	2b
10a(2) *	Unload and Shutdown	2b
11	***LAUNCH FACILITY***	
	TR: TO 21M-LGM30G-2-10	
11a	LSB	-
11a(1) *	Enter **(See note 5)**	1b
11a(2) *	Exit	1b
11b	LER	-
11b(1) *	Enter	1b
11b(2) *	Exit	1b
11c *	Perform emergency shutdown procedures	1b
11d *	Evacuate LF for EWO launch	1b
11e *	Perform emergency procedures for electrical isolation of LSB	1b
11f *	Perform LF hostile securing procedures	1b
11g	Raise/lower equipment	1b
12	***MISSILE***	
	TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X	
12a	Startup and coding operations description	B
12b *	Change Command Signal Decoder Missile, CSD (M) code	3c
12c *	Downgrade computer memory information	3c
12d *	Perform normal AVE/OGE shutdown	3c
12e *	Start up AVE/OGE	3c
12f *	Load computer memory	3c
12g *	Readout and record local data words	3c
13	***MISSILE GUIDANCE SET COOLING SYSTEM***	
	TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-6	
13a	Description	B
	TR: TO 21M-LGM30G-1-1	
13b *	Checkout	3c
13c *	Troubleshoot	2b
13d *	Repair	2b

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
14	***POWER SYSTEM (WS133A/B AND WS118A)***	
	TR: TOs 21M-LGM30G-2-11-X, 21M-LGM30G-2-1-X; CEM 21M-SM80X-2-21-X	
14a	Description	B
	TR: TOs 21-LG118A-1, 21-LG118A-2-11-(1), 21M-LGM30G-1-1, 21M-LGM30G-2-11-X; CEM 21-SM80X-2-21-X	
14b	Storage batteries	-
14b(1) *	Checkout	3c
14b(2) *	Replace	2b/b
14c	LF battery charger set	-
14c(1) *	Checkout	3c
14c(2) *	Replace	2b
14d	LF distribution box	-
14d(1) *	Checkout	2b
14d(2) *	Repair	2b
14e *	Checkout LCC motor generator set	2b
14f *	Checkout LF motor generator set	2b
14g *	Perform power fault to ground checkout	2b
14h	LCC power supply group	-
14h(1) *	Checkout	3c
14h(2) *	Repair	2b
14i	LF power supply group	-
14i(1) *	Checkout	2b
14i(2) *	Repair	2b
15	***SECURITY SYSTEM***	
	TR: TOs 21M-LGM30F-2-4-X, 21M-LGM30F-2-19, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-4	
15a	Description	B
15b *	Perform system checkout	2b
16 *	***REPLACE ELECTRONIC DRAWER***	3c
	TR: TOs 21M-LGM30G-2-12-X, 21M-LGM30G-2-11-X, 21M-LGM30X-2-4-(X)	
17	***STANDARD TEST EQUIPMENT***	
	TR: TO 31-1-141 Series, 33A1 Series; Applicable owner/user manuals	
17a	Use analog multimeters	3c
17b	Use digital multimeters	3c
	NOTE 1: Items in column 1 marked with an asterisk (*) are tasks that are trained in resident wartime course	

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
	NOTE 2: Applicable AFSC job oriented safety training is integrated throughout the course	
	NOTE 3: Applications of the USAF technical data systems are integrated throughout the course	
	NOTE 4: Mission Ready Airman tasks ("3c" level) will be certified by the technical school in the applicable attachment (identified with a "3" in the core task column)	
	NOTE 5: This task requires initial shotgun qualification	

PART II
Section A4

AFSC 2M031B
SPECIALTY TRAINING STANDARD (STS)

1. **Purpose.** As prescribed in AFI 36-2201 this STS:

a. Lists the tasks, knowledge, and technical references (TR) necessary for airmen to be awarded the 3-skill level in the 2M031B Missile and Space Systems Electronics ladder of the Missile and Space Systems Career Field. These are based on an analysis of the duties in AFI 36-2108. Those tasks marked with an asterisk (*) will be trained in the resident wartime initial skills course.

Note: Users are responsible for annotating training references to identify current references pending STS revision.

b. Show formal training requirements. The basic STS shows the level to which the Technical Training Unit for course 2M031B as described in ETCA, located on the HQ 2AF website has accomplished task/knowledge training. When two codes are used in the same task proficiency column, the first code is the established requirement for resident training on the task/knowledge, and the second code indicates the level of training provided in the course due to equipment shortages or other resource constraints.

2. **Proficiency Code Keys.** The proficiency code key is used to indicate level of training and knowledge provided by resident training and career development courses.

3. Report unsatisfactory performance of individual course graduates using AF Form 1284 as prescribed in AFI 36-2201. Report inadequacies and suggested corrections to this STS to the 2M0XX AFCFM through the MAJCOM functional manager. All approved changes to this CFETP will be forwarded to 532 TRS/DOAT, 597 7th St, Vandenberg AFB, CA, 93437-5305**.**

This STS supersedes AFSC 2M031B STS in CFETP 2M0X1, Parts 1 - 2, 30 June 1996.

MICHAEL E. ZETTLER, Lt General, USAF
DCS/Installation & Logistics

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
1	***CAREER LADDER PROGRESSION***	
	TR: AFI 36-2101, 2M0X1 Career Field Education and Training Plan (CFETP), AFVA 36-212	
1a	Progression in career ladder 2M0X1A/B	A
1b	Duties of AFSs 2M0X1A/B	A
2	***AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM***	
	TR: AFI 91-301	
2a	Hazards of AFSC 2M0X1A/B	A
	TR: AFI 91-301	
2b	Safety	A
	TR: TOs 00-25-245, 21-AG129-2-1, 21M-AGM86-2-1, 21M-AGM86-2-3	
2c	USAF Mishap Prevention Program	A
	TR: AFI 91-202, TO 31-1-141	
2d	Missile safety	B
	TR: AFIs 91-107, 91-114, 91-202	
2e	Nuclear surety	B
	TR: AFIs 91-104, 91-105, 91-202	
2f	Explosive safety	B
	TR: AFIs 91-201, 91-202	
2g	Hazard report	B
	TR: AFI 91-202	
2h	Environmental compliance	-
2h(1)	Overview of hazardous waste	A
	TR: AFIs 32-7041, 32-7042, 40 CFR Part 261, 262, 29 CFR Part 1910	
2h(2)	Hazardous material	-
	TR: 49 CFR Part 107, 120, 172	
2h(2a)	Handler responsibilities	B
2h(2b)	Transportation requirements	B
2h(3)	Hazardous material pharmacy concept of operation	A
	TR: ACC Environmental Program Guidance Document, Reference number 93-005 and CSAF Action Memo P3, dated 7 Jan 93	
2h(4)	Hazardous communication	B
	TR: 29 CFR Part 1910, AFOSH 161-21	
3	***PUBLICATIONS***	
	TR: AFI 37-X, ACCI 21-101	
3a	Use standard publications	2b

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
3b	Technical order system	-
	TR: AFPD 21-3, TOs 00-5-1, 00-5-2	
3b(1)	Description	A
3b(2) *	Use technical orders	3c
3b(3)	Initiate TO improvement report	2b
4	***MAINTENANCE MANAGEMENT***	
	TR: AFPD 21-1, AFIs 21-114, 21-108, 38-101, 21-101	
4a	Functions and responsibilities of missile and space organizations	A
4b	Basic functions of missile/space maintenance units	A
4c	Maintenance data collection forms	A
	TR: TO 00-20-2	
5	***COMMON MAINTENANCE PRACTICES***	
	TR: TOs 00-25-234, 1-1A-8, 1-1A-14, 1-1A-15	
5a *	Use common handtools	3c
	TR: TO 32-1-2, 32-2-101, 32-1-151	
5b *	Use special tools	3c
	TR: TO 32B14-3-1-101	
5c *	Use aerospace hardware	3c
	TR: TO 1-1A-8, 1-1A-14, 1-1A-15	
5d *	Corrosion identification	A
	TR: TO 1-1-2	
5e	Electrostatic Discharge (ESD) Control Procedures	-
	TR: TO 00-25-234	
5e(1) *	Perform printed circuit board handling and storage procedures	3c
5e(2) *	Perform ESD control procedures	3c
6	***OVERVIEW OF SPACE AND MISSILE SYSTEMS***	
	TR: TOs and procedures applicable to the space/weapon system	
6a	Air Launched Cruise Missile/Conventional Air Launched Cruise Missile	A
	TR: TOs 11N-W80.83-2, 21M-AGM86-2-1, 21M-AGM86-8-1, 21M-AGM86-2-3, 21M-AGM86-8-3	
6b	Advanced Cruise Missile	A
	TR: TOs 11N-W80.85-2, 21-AG129-2-1, 21-AG129-8-1	
6c	Minuteman III	A
	TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-2-8, 21M-LGM30G-2-10, 21M-LGM30G-2-33	
6d	Peacekeeper	A
	TR: TOs 21-LG118A-1, 21-LG118A-2-10	

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
6e	Atlas II	A
	TR: Atlas DOD User's Mission Planning Guide: AU-18 Space Handbook	
6f	Delta II	A
	TR: MDA Delta User's Guide: Handbook of Delta Operations, AU-18 Space Handbook	
6g	Titan II	A
	TR : TITAN II SLV Propulsion Subsystem (GenCorp Aerojet dated: 1992), AU-18 Space Handbook, MMC Study Guide 1001	
6h	Titan IV	A
	TR: Titan IV Propulsion Subsystems (Aerojet Co. dated: January 1989), AU-18 Space Handbook, MMC Study Guide VT4-200	
6i	Satellite Systems	A
	TR: American Institute of Aeronautics-Astronautics Handbook, AU-18 Space Handbook, Space Operations Orientation Handbook (3rd Edition, 1 Aug 1993)	
6j	Research and Development Systems	A
	TR: AFI 10-201	
7	***AIRCRAFT WEAPON INTEGRATION SYSTEM***	
7a	B-52H aircraft weapon integration system	A
	TR: TO 1B-52H-2-38GA-1	
7b	B-2A aircraft weapon integration system	A
	TR: TO 1B-2A-2-94GA	
8	***AGM-86B/C MISSILE SYSTEMS***	
	TR: TOs 11N-W80.83-2, 21M-AGM86-2-1, 21M-AGM86-2-3, 21M-AGM86-8-1, 21M-AGM86-8-3	
8a	Systems	-
8a(1) *	Secondary power	A
8a(2) *	Safe, arm and fuze	A
8a(3) *	Environmental control	A
8a(4) *	Propulsion	A
8a(5) *	Flight control	A
8a(6) *	Navigation	A
8b *	Interpret missile diagrams	2b
8c	Describe missile maintenance processes	-
8c(1) *	Engine fuel priming	A
8c(2) *	Missile fuel/defuel/emergency defueling	A
	TR: TOs 21M-AGM86-31, 21M-AGM86-32	
8c(3) *	Missile general repair	B
8c(4) *	Perform hardness critical procedures	3c
8c(5) *	Inspect RFI/EMI gaskets	3c

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
8d	Replace missile components	-
8d(1) *	Common missile radar altimeter	3c
8d(2) *	Inertial navigation element	3c
8d(3) *	Engine	3c
8d(4) *	Rotary switch	3c
8d(5) *	Guided missile flight controller	3c
8d(6) *	Actuator controller	3c
8d(7) *	Warhead arming device	3c
8d(8) *	Flight data transmitter	3c
8e	Perform the following	-
8e(1) *	Aerosurface deployment/stowage	3c
8e(2) *	Missile transfer	3c
8e(3) *	ECS leakage rate check	3c
8e(4) *	Engine leak test	3c
8e(5) *	Igniter circuit test	3c
8f	Perform missile checkout	-
8f(1) *	ALCM level I	3c/2b
8f(2) *	CALCM level I	B
8f(3) *	Flight load	3c/b
8f(4) *	Isolate malfunctions	2b
9	***AGM-129A MISSILE***	
	TR: TOs 11N-W80.85-2, 21-AG129-2-1, 21-AG129-8-1	
9a	Systems	-
9a(1) *	Electrical power	A
9a(2) *	Warhead safe, arm, fuze	A
9a(3) *	Environmental control	A
9a(4) *	Pyrotechnic	A
9a(5) *	Fin control	A
9a(6) *	Propulsion	A
9a(7) *	Navigation and guidance	A
9a(8) *	Observables technology	A
9b *	Interpret missile diagrams	2b
9c	Describe the following maintenance processes	-
	TR: TOs 21-AG129-2-1, 21-AG129-31	
9c(1) *	Engine fuel priming	A
9c(2) *	Fuel/defuel/emergency defuel	A

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
9d	Replace missile components	-
9d(1) *	Sensor set	3c
9d(2) *	Engine	3c
9d(3) *	Aft avionics unit	2b
9d(4) *	Forward avionics unit	3c
9d(5) *	Navigation control set	3c
9d(6) *	Ice detector transducer	3c
9d(7) *	Air cycle cooling unit	3c
9d(8) *	Dessicant assemblies	3c
9e	Perform the following	-
	TR: TOs 11N-W80.85-2, 21-AG129-2-1	
9e(1) *	Missile transfer	3c
9e(2) *	ECS leak check	2b
9e(3) *	Environmental sealing checks	B
9e(4) *	Coating repair	2b
9e(5) *	Aerosurface deployment/stowage	3c
9f	Perform missile checkout	-
	TR: TO 21-AG129-8-1	
9f(1) *	Level I	3c/2b
9f(2) *	Isolate malfunctions	2b
9f(3) *	Flight load	3c/b
10	***AIRCRAFT ROTARY LAUNCHER AND PYLON SYSTEMS***	
	TR: TOs 11G22-5-5-2, 11G22-5-5-8-19, 11L1-2-25-8-1, 11L1-2-25-8-4, 11N-L5001-2, 11N-L5005-8, 11N-L5006-2, 11N-L5006-8, 11N-T5162-2, 11N-T5162-8, 11N-T5166-2, 11N-T5166-8, 11N-T5167-2, 11N-T5167-8, 11N-T5168-2, 11N-T5168-8, 11N-T5169-2, 11N-T5169-8, 16W6-33-1, 16W6-33-8-1, 21-AG129-8-2, 21M-AGM86-8-2, 21M-AGM86-8-4	
10a	Describe the operation of the following launcher/pylon systems	-
10a(1) *	Power	A
10a(2) *	Environmental control	A
10a(3) *	Monitor and control	A
10a(4) *	Mechanical	A
10b *	Interpret launcher/pylon diagrams	2b
10c	Perform launcher/pylon checkout	-
10c(1)	Empty pylon	B
10c(2)	Empty launcher	B
10c(3)	Loaded launcher	B
10c(4)	Loaded pylon	B

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
10d	Perform Level III checkout	-
10d(1)	Decoder receiver	2b
10d(2)	Nuclear station logic unit	2b/b
10e	Isolate/repair malfunctions on the following	-
10e(1)	Decoder receiver	2b
10e(2)	Nuclear station logic unit	2b/b
11	***MISSILE SUPPORT AND TEST EQUIPMENT***	
11a *	State the operation and use of the missile support equipment	A
	TR: TOs 11N-H5028-2, 11N-H5054-2, 11N-H5088-2, 11N-H5095-2, 11N-H5099-2, 11N-T5039-2, 11N-T5087-2, 11N-W80.83-2, 21-AG129-2-1, 21M-AGM86-31, 33D3-11-50-2, 33D5-14-20-1, 33D9-2-7-2, 33D9-5-42-1, 35D-1-193, 35D3-11-45-2, 35D3-11-50-2, 35D5-4-6-1, 35D9-38-56-1, 35M8-2-7-1, 37A9-6-2-1	
11b *	State the operation and use of the missile systems test equipment	A
	TR: TOs 11N-H5028-2, 11N-H5088-2, 11N-H5095-2, 11N-T5113-2, 33D7-3-189-7, 33D7-16-19-1-1, 33D7-16-19-1-2, 33D7-38-127-1, 33D7-38-127-2, 33D7-44-233-1, 33D7-86-51-1, 33D9-16-9-1, 33D9-19-54-1, 33D9-19-54-8-1, 33D9-19-55-1, 33D9-19-58-11, 33D-19-81-1, 33D9-54-75-1, 33D9-54-75-8-1, 33D9-61-71-1, 33D9-61-71-21, 33D9-142-23-1, 33DA43-20-2, 35D3-11-50-2, 35D5-4-6-1, 33D9-122-20-1, 35M8-2-7-1	
12	***FUEL/DEFUEL SET A/F32R-5***	
	TR: TO 33D9-2-7-2	
12a	Describe the operation of the following systems	-
12a(1) *	Shop air	A
12a(2) *	Nitrogen	A
12a(3) *	Fuel piping	A
12a(4) *	Vent	A
12a(5) *	Vacuum	A
13	***ELECTRONIC SYSTEM TEST SET (ESTS) AN/GSM263/A/F/G***	
	TR: TOs 33D9-61-71-1, 33D9-61-71-1-1, 33D9-61-71-4	
13a *	State the purpose of the ESTS major components	A
13b *	Perform ESTS confidence test	3c
	TR: TO 33D9-61-71-7-1	
13c *	Describe the purpose of the disc cleaner/verifier	A
14	***WEAPONS STORAGE AREA (WSA) FACILITIES/SUPPORT SYSTEMS***	
	TR: AFI 91-201	
14a	Describe the following WSA facilities	-
14a(1)	Integrated maintenance facility	A
14a(2)	Unarmed Weapons Storage Facility (UWSF)	A
14a(3)	Weapons storage structures (igloos)	A

		3 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**COURSE**
14b	Operation of WSA facility systems	-
14b(1)	Fire suppression (halon/AFFF/water)	A
14b(2)	Static ground/lightening protection system	A
14b(3)	Overhead hoist/monorail	3c
14b(4)	Hydraulic/electrical/pneumatic systems	A
14b(5)	Cruise missile bulk fuel storage system	A
14b(6)	Security systems (sensors/alarms)	A
14b(7)	Weapons physical security/limits	A
	TR: DOD 5210.41-M, AFI 31-101 Vols 1 & 2, TOs 11N-20-1, 11N-20-7	
	NOTE 1: Items in column 1 marked with an asterisk (*) are tasks that are trained in resident wartime course	
	NOTE 2: Applicable AFSC job oriented safety training is integrated throughout the course	
	NOTE 3: Applications of the USAF technical data systems are integrated throughout the course	
	NOTE 4: Mission Ready Airman tasks ("3c" level) will be certified by the technical school in the applicable attachment (identified with a "3" in the core task column)	
	NOTE 5: Users are responsible for annotating training references to identify current references pending STS revision	

PART II
Section A5

2M051/2M071
SPECIALTY TRAINING STANDARD (STS)

1. **Purpose.** As prescribed in AFI 36-2201, this STS:

a. Lists the tasks, knowledge, and technical references (TR) necessary for airmen to perform in the 3-, 5-, and 7-skill level in the Missile and Space Systems Electronics ladder of the Missile and Space Systems Career Field. These are based on an analysis of the duties in AFI 36-2108. Those tasks marked with an asterisk (*) will be trained in the resident wartime initial skills course.

Note: Users are responsible for annotating training references to identify current references pending STS revision.

b. Show formal training requirements. The basic STS shows the level to which the Technical Training Unit for course 2M071 as described in ETCA, located on the HQ 2AF website has accomplished task/knowledge training. When two codes are used in the same task proficiency column, the first code is the established requirement for resident training on the task/knowledge, and the second code indicates the level of training provided in the course due to equipment shortages or other resource constraints.

c. Indicates the career knowledge provided in the 5-skill level and 7 skill level CDC. See ECI/AFSC/CDC listing maintained by the unit Enlisted Specialty Training (EST) manager for current CDCs or part II, section C of the CFETP.

d. Identifies Air Force minimum core task training requirements for award of AFSCs 2M051 and 2M071.

e. Provides OJT certification columns to record completion of task and knowledge training requirements.

f. Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Senior NCOs with extensive practical experience in the career fields develop specialty Knowledge Tests (SKTs) at the USAF Occupational Measurement Squadron. The test samples knowledge of STS subject matter areas judged by test development team members to be the most appropriate for promotion to higher grades. Questions are based on the study references listed in the WAPS catalog. Individual responsibilities are in AFI 36-2605.

g. Serves as a Job Qualification Standard (JQS). Trainees are trained, evaluated and qualified to the go/no go level. “Go” means the individual can perform the task without assistance and meets local requirements for accuracy, timeliness, and correct use of procedures. This document may be automated in whole or part to reflect duty position requirements and

qualifications. Partial automation requires annotation in the CFETP of location/system used to reflect duty position requirements/qualifications.

h. Upgrade Certification Procedures: Prior to upgrade, all 2M0X1 maintenance personnel, regardless of duty position, must satisfactorily complete upgrade training requirements identified in Part I, Section B, paragraph 3b for 5-level upgrade, paragraph 3c for 7-level upgrade, and paragraph 3d for 9-level upgrade. Trainees must also meet AFSC experience requirements outlined in AFI 36-2101 and AFI 36-2108. Work centers may add local upgrade core tasks and non-mandatory tasks to the applicable attachment. Completion of non-mandatory tasks pertinent to the unit will continue to be accomplished, as tasks become available for training.

(1) Five skill level core tasks are listed in the following attachments for the duty positions shown:

(a) Attachment 2 lists core ICBM Maintenance tasks.

1. Need only complete core task training on one weapon system for multiple weapon system units.

(b) Attachment 4 lists core ALCM Maintenance tasks

(2) Seven skill level core tasks are listed in the following attachments for the duty positions shown:

(a) Attachment 2 lists core ICBM Maintenance tasks

1. Must complete all EMT/ELAB core tasks
2. Need only complete core task training on one weapon system for multiple weapon system units.

(b) Attachment 4 lists core ALCM Maintenance tasks

1. May complete either VACE or Missile Checkout core task requirements to satisfy upgrade training requirements.

2. Records Documentation. Document training as follows:

a. Identification: Enter trainee, trainer, and certifying official information on the JQS identification page.

b. Certification: Certify tasks in pencil as follows:

(1) Identify tasks required for current duty position by circling applicable task numbers. If in skill level upgrade training, circle required core tasks and other required tasks (as applicable) commensurate with the required upgrade skill level. Erase all circles on task numbers not required for current duty position when upgrade action is complete. Erasing the circles does not decertify the individual on those tasks.

(2) When task training starts, enter the training start date.

(3) When the trainer and trainee agree to task proficiency, enter the completion date and both will initial the appropriate section of the JQS. If third party certification is required, i.e. core tasks, task certification occurs when the appropriate certifier determines the trainee is proficient, and initials the certifying officials block for that task. Third party certifiers are mandatory for all core tasks and MAJCOM identified critical tasks (see AFI 36-2201 for exceptions). Exceptions are for certifiers and only apply to grade/skill level and the "someone other than the trainer" requirements. For non-core tasks, only the trainer's initials in the trainer block are required for certification.

c. Decertification: To decertify an individual, who is no longer proficient in a task, erase the trainer's initials. For core tasks, erase the certifier's initials. Annotate 623a with reason for decertification.

d. Recertification: Task recertification requires some level of retraining. To recertify an individual on a previously certified task, erase the start date, completion date, trainee initials, and trainer initials. Recertify following the procedures in b(2) and b(3) above.

e. Transcription: When necessary, e.g., the STS/JQS is saturated, dirty, mutilated, etc., the supervisor may transcribe the data to a new STS/JQS. Following the transcription, annotate an AF Form 623a to explain the transcription actions. The supervisor will enter his or her name and initials following the explanation. Give the old STS/JQS to the trainee to retain as training history. To transcribe data, the supervisor (or designated representative) will:

(1) Identify required tasks for current duty position by circling the applicable task number in the new STS/JQS.

(2) Have the trainee initial in the "trainee block" in the new STS/JQS.

(3) Initial in the trainer or certifier block as applicable in the new STS/JQS.

(4) For previous qualifications/certifications not required in current duty position, only transcribe the previous completion date. Ensure all completion dates are transcribed from the old STS/JQS to the new STS/JQS.

f. Tasks that are not included in the STS may be added to a local attachment, provided the same format as the STS is used. These attachments will be reviewed annually during the CFETP review to determine if these tasks should be added to the STS.

3. **Proficiency Code Keys.** The proficiency code key is used to indicate level of training and knowledge provided by resident training and career development courses.

4. Report unsatisfactory performance of individual course graduates using AF Form 1284 as prescribed in AFI 36-2201. Report inadequacies and suggested corrections to this STS to the 2M0XX AFCFM through the MAJCOM functional manager. All approved changes to this CFETP will be forwarded to 532 TRS/DOAT, 597th St, Vandenberg AFB, CA, 93437-5305**.**

This STS supersedes AFSC 2M051/2M071 STS in CFETP 2M0X1, Parts 1 - 2, 30 June 1996.

MICHAEL E. ZETTLER, Lt General, USAF
DCS/Installations & Logistics

5 Attachments
1. Common Msl & Spc Maint
2. ICBM Maint
3. Spacelift Maint
4. ALCM Maint
5. R&D

SPECIALTY TRAINING STANDARD (STS)
AFSC 2M051/2M071
MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE
(JOURNEYMAN/CRAFTSMAN)

		5 Lvl	7 Lvl	7 Lvl
ITEM #	**TASK / KNOWLEDGE ITEM**	**CDC**	**CRSE**	**CDC**
1	***CAREER LADDER PROGRESSION***			
	TR: AFI 36-2101; 2M0X1 Career Field Education and Training Plan (CFETP)			
1a	Progression in career ladder 2M0X1/A/B	B	-	-
1b	Duties of AFSC 2M0X1/A/B	B	-	-
2	***PUBLICATIONS***			
	TR: AFI 37-X			
2a	Use standard publications	B	-	-
2b	Technical Order System	-	-	-
	TR: AFPD 21-3; TOs 00-5-1, 00-5-2			
2b(1)	Description	B	-	-
2b(2)	Initiate TO improvement report	B	-	-
2c	Use CEMs	B	-	-
	TR: AFSPCIND 0-7, AFSPCI 32-1009			
3	***MAINTENANCE MANAGEMENT***			
	TR: AFPD 21-1; AFIs 21-108, 21-114, 38-101; AFSPCI 21-0114, ACCI 21-101			
3a	Functions and responsibilities of missile and space organizations	B	-	B
3b	Functions of missile/space maintenance units	B	-	B
3c	Deficiency reports	A	-	B
	TR: TO 00-35D-54			
3d	Hardness assurance program	B	-	-
	TR: AFI 32-1054; TOs 21-LG118A-2-10, 21M-LGM30G-2-10-(1), 21M-LGM30G-2-31			
3e	Expanded Missile Data Analysis System (EMDAS)/	B	-	B
	Improved Maintenance Management Program (IMMP)			
	TR: TO 33D9-61-76-1, Document #IMMP-SIOM, Vol 1 of 1, dated 21 Dec 95, Tutorials			
3f	Core Automated Management System (CAMS)	B	-	-
	TR: AFCSM 21-556 thru 21-579			
3g	Reliability and maintainability	-	-	B
	TR: AFP 80-24			
3h	Strategic Force Application Module	-	-	B
	TR: MCR 55-8; SD 501-14; AFSPCI 21-0103			
4	***COMMON MAINTENANCE PRACTICES***			
	TR: AFI 32-1054; TOs 00-25-234, 21-LG118A-2-10, 21M-LGM30G-2-10-(1), 21M-LGM30G-2-31			
4a	Use special tools	B	-	-
	TR: 32B14-3-1-101			

4b	Inspect RFI/EMI Gaskets	B	-	-
	TR: 21M-LGM30F-112			
4c	Common troubleshooting theory/techniques	B	-	-
	TR: TO 31-1-141			
4d	Electrostatic Discharge (ESD) Control Procedures	B	-	-
	TR: TO 00-25-234			
5	***SPACE AND MISSILE SYSTEMS TEST/INSPECTION PROCESSES***			
5a	Test and evaluation	-	-	B
	TR: AFIs 99-1, 99-103			
5b	Simulated Electronic Launch Minuteman/Peacekeeper (SELM/SELP)	-	-	B
	TR: TOs 21M-LGM30G-1-17, 21M-LGM30G-1-18, 33D9-61-108-1			
5c	Analytical Condition Inspection (ACI)	-	-	B
	TR: AFMCI 21-102			
6	***SPACELIFT SYSTEMS***			
	TR: TITAN II SLV Propulsion Subsystem (GenCorp Aerojet dated: 1992); Titan IV Propulsion Subsystems (Aerojet Co. dated: January 1989); AU-18; AFM 52-31; Atlas DOD User's Mission Planning Guide			
6a	Mission	A	-	-
6b	Vehicle configuration	-	-	-
6b(1)	Atlas II	A	-	-
	TR: Atlas DOD User's Mission Planning Guide; AU-18 Space Handbook			
6b(2)	Delta II	A	-	-
	TR: AU-18 Space Handbook			
6b(3)	Titan II	A	-	-
	TR: TITAN II SLV Propulsion Subsystem (GenCorp Aerojet dated: 1992); AU-18 Space Handbook; MMC Study Guide 1001; VT2 1000			
6b(4)	Titan IV	A	-	-
	TR: Titan IV Propulsion Subsystems (Aerojet Co. dated: January 1989); AU-18 Space Handbook; MMC Study Guide VT4-200			
6b(5)	Other	A	-	-
7	***SPACELIFT FACILITIES***			
	TR: Aerojet Handbook; VT2 1000, VT4 200			
7a	Satellite processing and control center	-	-	A
7b	Launch complex	A	-	-
	TR: Aerojet Handbook; MMC DOC TXX-00501-XX; Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
7c	Blockhouse/control center	A	-	-
	TR: Aerojet Handbook; CT4-644, Pad Safety Plan; Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			

7d	Support	A	-	-
	TR: Aerojet Handbook			
8	***SPACELIFT ELECTRICAL SYSTEMS***			
	TR: Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
8a	Airborne	-	-	B
	TR: VT2-910, VT4-910			
8b	AGE	-	-	B
	TR: MMC SG 1001; VT4-920			
9	***SPACELIFT HYDRAULIC SYSTEMS***			
	TR: Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
9a	Airborne	-	-	A
	TR: VT2-860, VT4-860, VT4-120			
9b	AGE	-	-	A
	TR: MMC SG 1001; VT4-200, VT4-860			
10	***SPACELIFT PNEUMATIC SYSTEMS***			
	TR: Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
10a	Airborne	-	-	A
	TR: VT 2-830, VT4-830; MMC 08A 50, 08A 52			
10b	AGE	-	-	A
	TR: VT 2-830, VT4-830			
11	***PROPELLANTS***			
	TR: Aerojet Handbook; ESMC 127-1; WSMC 127-1; Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93; AU-18 Space Handbook			
11a	Solids	-	-	A
	TR: UTC Crs 8000-02			
11b	Liquids	-	-	A
	TR: 08501-503			
11c	Gases	-	-	A
12	***SPACELIFT PROPULSION SYSTEMS***			
	TR: AU-18, Aerojet Handbook			
12a	Solids	-	-	A
12b	Liquids	-	-	A
12c	Gases	-	-	A
13	***SPACELIFT ORDNANCE SYSTEMS***			
	TR: VT2-875, VT4-875; Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
13a	Ignition	-	-	A
	TR: CT4-875; VTC 8000-2			
13b	Separation	-	-	A

13c	Flight Termination	-	-	A
	TR: MMC DOC 1002, 1003; VT II- 910, VT4-980			
14	***SPACELIFT GUIDANCE AND CONTROL SYSTEMS***			
	TR: Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
14a	Inertial Systems	-	-	B
	TR: AU-18, VT2-910, VT4-910			
14b	Guidance Computer	-	-	B
	TR: VT2-910, VT4-910			
14c	Flight Control Systems	-	-	B
	TR: AFSC Design Handbook 3-2, Chap 11 & 12; MMC DOC 1002, 1003; VT2-900, 920, VT4-120			
15	***TELEMETRY SYSTEMS***			
	TR: Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
15a	Airborne	-	-	B
	TR: VTII -970, 975, 980; VTC-971, 975, Vol I & II			
15b	Ground	-	-	B
	TR: VT 4-975, 976, 977, 979, 981			
15c	Flight Termination	-	-	B
	TR: VT2-910, 980, VT4-980			
16	***COUNTDOWN OPERATIONS***			
	TR: Titan Countdown Manual; MMC Proc 00F01, 00F02; Atlas DOD Mission Planner's Guide; 3SLS Self-Study Guide 93			
16a	Launch Preparation	-	-	B
	TR: MMC Proc 00E01, 00E02, 00D01, 00D02			
16b	Terminal Countdown	-	-	B
	TR: MMC Proc 00E03, 00E04, INT 10X0			
16c	Post-Launch Procedures	-	-	B
	TR: MMC Proc 00G51, MECH 0007			
17	***SATELLITE SYSTEMS***			
	TR: AU-18 Space Handbook			
17a	Mission	A	-	-
17b	Characteristics	-	-	B
17c	Electrical	-	-	B
17d	Boost	-	-	B
18	***RESEARCH AND DEVELOPMENT SYSTEMS***			
	TR: AFI 10-201			
18a	Missions of Air Force Research Laboratory	A	-	-
18b	Missions of Test and Evaluation Centers	A	-	-

19	***CLOSED CIRCUIT VIDEO SYSTEMS***			
	TR: TO 31-1-141-9			
19a	Theory	-	-	B
19b	Operation	-	-	A
20	***LASERS***			
	TR: TO 31-1-141-3; AFOSH Std 161-10			
20a	Theory	-	-	B
20b	Operation	-	-	A
21	***OPTICAL SYSTEMS***			
	TR: TO 33B4-8-9-1			
21a	Theory	-	-	B
21b	Operation	-	-	A
22	***PRESSURIZED SYSTEMS***			
	TR: TO 00-25-233			
22a	Theory	-	-	A
22b	Operation	-	-	A
23	***VACUUM SYSTEMS***			
	TR: TO 00-25-233			
23a	Theory	-	-	A
23b	Operation	-	-	A
24	***WEAPON SYSTEMS DESCRIPTION (WS 133A/B AND WS 118A)***			
	TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-10, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-10-(1)			
24a	Missile	B	-	-
24b	Launch Facility	B	-	-
24c	Missile Alert Facility	B	-	-
24d	Missile Support Base	B	-	-
25	***ACCESS SYSTEMS (WS133A/B AND WS118A)***			
	TR: TOs 21-LG118A-1-1, 21-LG118A-2-10, 21-LG118A-2-19, 21M-LGM30F-2-19, 21M-LGM30G-1-1, 21M-LGM30G-2-10-(1)			
25a	Description	B	-	-
25b	Perform secondary door lockout break-in procedures	A	-	-
	TR: TO 35M37-4-12			
26	***COMMAND AND CONTROL***			
26a	WS133A/B	B	-	C
	TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-1-1X, 21M-LGM30G-2-1-X, 21M-LGM30G-2-3-1, 21M-LGM30G-2-12-X, 33D9-74-42-2			
26b	WS118A	B	-	C
	TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-11, 21-LG118A-2-12-(1)			

27	***INTRASITE CABLING SYSTEM***			
27a	WS133A/B	B	-	-
	TR: TOs 21M-LGM30F-12, 21M-LGM30G-1-1, 21M-LGM30G-1-1X, 21M-LGM30G-2-1-X, 21M-LGM30G-2-21-X			
27b	WS118A	B	-	-
	TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-21			
28	***ISOLATE FAULTS***	-	-	C
	TR: TOs 21-LG118A-2-1, 21-LG118A-2-10, 21-LG118A-2-17-2, 21-LG118A-2-21, 21M-LGM30G-2-1-X, 21M-LGM30G-2-21-X			
29	***MISSILE STARTUP AND CODING OPERATIONS DESCRIPTION***	B	-	-
	TR: TOs 21-LG118A-2-12-X, 21M-LGM30G-2-12-X, 31X8-2-2-X			
30	***MISSILE GUIDANCE SET COOLING SYSTEM***	B	-	-
	TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-6			
31	***POWER SYSTEM***			
31a	WS133A/B	B	-	C
	TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-11-X, 21M-LGM30G-2-12-3; CEM 21-SM80X-2-21-X			
31b	WS118A	B	-	C
	TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-11-X, 21-LG118A-2-12; CEM 21-SM80B-2-21-4			
32	***SECURITY SYSTEM***	B	-	-
	TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-4, 21-LG118A-2-19, 21M-LGM30F-2-4-X, 21M-LGM30F-2-19, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-4			
33	***ELECTRICAL EQUIPMENT TEST STATION DESCRIPTION (E35)***	A	-	B
	TR: TOs 33D9-61-57-21, 33D9-61-91-2, 33K3-4-1196-1			
34	***ELECTRICAL FACILITY - BASE MAINTENANCE DESCRIPTION***	A	-	-
	TR: TO 33D9-6-21-1			
35	***COMPUTER TEST SET DESCRIPTION***	A	-	-
	TR: TOs 31S5-2UYK11-2, 33D9-53-73-1			
36	***MEMORY CONTROLLER GROUP TEST SET DESCRIPTION***	A	-	-
	TR: TO 33D9-17-79-2			
37	***CODE PROCESSING SYSTEM DESCRIPTION***	A	-	-
	TR: TO 31X8-2-2-X			
38	***HARDWARE CERTIFICATION VERIFICATION EQUIPMENT DESCRIPTION***	A	-	-
	TR: TO 31X8-2-3-1			
39	***NUCLEAR CERTIFICATION OF CRITICAL COMPONENT DESCRIPTION***	A	-	-
	TR: AFI 91-103; TO 21-LG118A-12-1			
40	***AIRCRAFT WEAPON INTEGRATION SYSTEM***			
40a	B-52H aircraft weapon integration system	A	-	-
	TR: TOs 1B-52H-1-12, 1B-52H-30-3, 1B-52H-30-4, 1B-52H-2-38GA-1			

40b	B-2A aircraft weapon integration system	A	-	-
	TR: TO 1B-2A-2-94GA			
41	***AGM-86B/C MISSILE***			
	TR: TOs 11N-W80.83-2, 21M-AGM86-2-1, 21M-AGM86-2-3, 21M-AGM86-8-1, 21M-AGM86-8-3			
41a	Systems	-	-	-
41a(1)	Secondary power	B	-	-
41a(2)	Safe, arm and fuze	B	-	-
41a(3)	Environmental control	B	-	-
41a(4)	Propulsion	B	-	-
41a(5)	Flight control	B	-	-
41a(6)	Navigation	B	-	-
41b	Interpret missile diagrams	-	-	B
41c	Describe Level 1 testing	B	-	-
42	***AGM-129A MISSILE***			
	TR: TOs 11N-W80.85-2, 21-AG129-2-1, 21-AG129-8-1			
42a	Systems	-	-	-
42a(1)	Electrical power	B	-	-
42a(2)	Warhead safe, arm, fuze	B	-	-
42a(3)	Environmental control	B	-	-
42a(4)	Pyrotechnic	B	-	-
42a(5)	Fin control	B	-	-
42a(6)	Propulsion	B	-	-
42a(7)	Navigation and guidance	B	-	-
42a(8)	Observables technology	B	-	-
42b	Interpret missile diagrams	-	-	B
42c	Describe Level 1 testing	B	-	-
43	***AIRCRAFT ROTARY LAUNCHER AND PYLON SYSTEMS***			
	TR: TOs 11G22-5-5-2, 11G22-5-5-8-19, 11L1-2-25-8-1, 11L1-2-25-8-4, 11N-L5001-2, 11N-L5005-8, 11N-L5006-2, 11N-L5006-8, 11N-T5162-2, 11N-T5162-8, 11N-T5166-2, 11N-T5166-8, 11N-T5167-2, 11N-T5167-8, 11N-T5168-2, 11N-T5168-8, 11N-T5169-2, 11N-T5169-8, 16W6-33-1, 16W6-33-8-1, 21-AG129-8-2, 21M-AGM86-8-2, 21M-AGM86-8-4			
43a	Describe the operation of the following launcher/pylon systems	-	-	-
43a(1)	Power	B	-	-
43a(2)	Environmental control	B	-	-
43a(3)	Monitor and control	B	-	-
43a(4)	Mechanical	B	-	-
43b	Interpret launcher/pylon diagrams	-	-	B

44	***FUEL/DEFUEL SET A/F32R-5***			
	TR: TO 33D9-2-7-2			
44a	Describe the operation of the following systems	-	-	-
44a(1)	Shop air	B	-	-
44a(2)	Nitrogen	B	-	-
44a(3)	Fuel piping	B	-	-
44a(4)	Vent	B	-	-
44a(5)	Vacuum	B	-	-
45	***Electronic System Test Set (ESTS) AN/GSM263/A/F/G***			
	TR: TOs 33D9-61-71-1-(1), 33D9-61-71-4			
45a	State the purpose of the ESTS major components	A	-	-
45b	Describe the operation of the following systems	-	-	-
45b(1)	Computer system/peripherals	A	-	-
45b(2)	Measurement	A	-	-
45b(3)	Digital interface	A	-	-
45b(4)	Analog stimuli interface	A	-	-
46	***PURPOSE OF AIR DATA TEST SET (ADTS) AN/GSM-291 MAJOR COMPONENTS***	B	-	-
	TR: TO 33D9-61-71-1			
47	***PURPOSE OF MISSILE RADAR ALTIMETER TEST ASSEMBLY (MRATA) MAJOR COMPONENTS***	B	-	-
	TR: TOs 33D7-44-233-1, 33D7-44-233-4			
48	***ELECTRONICS COMPONENTS COOLING EQUIPMENT MXU-690/E, MXU-690A/E***			
	TR: TO 33D9-122-20-1			
48a	State the purpose of MXU-690 major components	B	-	-
48b	Describe the operation of flow circuit components	B	-	-
49	***PURPOSE OF REMOTE SWITCHING CONTROL ASSEMBLY (RSCA) MAJOR COMPONENTS***	B	-	-
	TR: TOs 33D9-54-75-1, 33D9-54-75-8-1			
50	***PURPOSE OF SENSOR TEST AN/GSM-320 MAJOR COMPONENTS***	B	-	-
	TR: TO 33D9-142-23-1			
51	***DESCRIBE THE WEAPONS STORAGE AREA (WSA) FACILITIES/SUPPORT SYSTEMS***			
	TR: AFI 91-201			
51a	Integrated Maintenance Facility (IMF)	A	-	-
51b	Weapons storage structures (igloos)	A	-	-

ATTACHMENT 1
AFSC 2M051/2M071 STS
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
1	***AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM***						
	TR: AFI 91-X						
1a	Use safety practices when working with weapon system equipment						
	TR: TO applicable to the weapon system						
1b	Report hazards						
1c	Inspect safety equipment for serviceability						
	TR: TOs 00-25-245, 21M-LGM30G-2-10 (-1), 21-LG118A-2-10						
1d	Comply with hazardous material safety requirements						
	TR: AFOSH STD 161-21						
2	***PUBLICATIONS***						
2a	Use standard publications						
	TR: AFI 37-X, AFSPCI 21-0114						
2b	Use technical orders	3					
	TR: AFPD 21-3; TO 00-5-1, 00-5-2						
2c	Initiate TO improvement report						
	TR: TO 00-5-1						
2d	Use supply publications/Illustrated Parts Breakdown (IPB)						
	TR: AFMAN 67-1						
2e	Use Civil Engineering Manuals (CEM)						
	TR: AFSPCI 32-1009						
2f	Initiate CEM improvement report						
	TR: AFSPCI 32-1009						
3	***MAINTENANCE MANAGEMENT***						
	TR: AFPD 21-1; AFI 21-114, 21-108; AFSPCI 21-0114; ACCI 21-101						
3a	Complete Maintenance Data Collection (MDC) forms						
	TR: TOs 00-20-2, 21M-LGM30F-06-X; CEM 21-SM80-06, 21M-AGM86-06, 21-AG129-06						
3b	Use Core Automated Management System (CAMS)						
	TR: AFCSM 21-556 thru 21-579						
3c	Use Improved Maintenance Management Program (IMMP)						
	TR: Applicable Software and System Manuals						
4	***TOOLS AND HARDWARE***						
	TR: TOs 00-25-234, 1-1A-8, 21-LG118A-2-10, 21-LG118A-12, 21M-LGM30F-12, 21M-LGM30G-2-31, 21M-LGM30G-2-10(-1)						

4a	Use tools	3					
	TR: TOs 32-1-2, 32-2-101, 32-1-151, 32B14-3-1-101						
4b	Use aerospace hardware						
	TR: TO 1-1A-8, 1-1A-14, 1-1A-15						
5	***SUPERVISION AND TRAINING***						
	TR: AFI 36-2201; AFSPCI 21-0114; ACCI 10-204						
5a	Supervision						
5a(1)	Orient new personnel						
5a(2)	Conduct predispatch maintenance briefings						
5a(3)	Coordinate activities of specialists						
5a(4)	Plan work assignments						
5a(5)	Schedule work assignments						
5a(6)	Counsel personnel						
	TR: AFI 36-2907						
5a(7)	Evaluate work performance of subordinates						
	TR: AFI 36-2403						
5a(8)	Initiate action to correct substandard performance of subordinates						
	TR: AFI 36-2907						
5a(9)	Evaluate technical school graduates						
	TR: AFI 36-2201						
5b	Training						
5b(1)	Plan and supervise training programs						
5b(2)	Conduct qualification training						
	TR: AETC OJT Trainer Course						
5b(3)	Prepare lesson plans						
5b(4)	Maintain training records						
5b(5)	Certify trainee qualifications						
	TR: AETC OJT Certifier Course						
6	***GENERAL MAINTENANCE***						
6a	Operate portable heaters						
	TR: TO 35E7-2-11-11, Applicable manufacture's operating instructions						
6b	Operate portable pumps						
	TR: Applicable manufacture's operating instructions; TOs 21M-LGM30G-2-10 (-1), 21-LG118A-2-10						
6c	Tubing maintenance						
	TR: TOs 1-1A-8						
6c(1)	Flare tubing						
6c(2)	Swage tubing						

6d	Solder/Solderless connectors						
	TR: TOs 00-25-234, 21M-LGM30F-12, 31-10-7, 1-1A-14, 1-1A-15, 34W4-1-8, 34W4-1-5, 34W4-1-7, 31-1-141-15						
6d(1)	Soft soldering						
6d(2)	Silver soldering						
6d(3)	Electrical soldering						
6d(3a)	Perform basic soldering/desoldering procedures						
6d(3b)	Perform soldering/desoldering on printed circuit boards						
6d(4)	Solderless connectors						
6d(4a)	Assemble solderless crimp connectors						
6d(4b)	Assemble solderless multipin connectors						
6e	Pneumatics						
	TR: TOs 00-25-223, 00-25-229, 1-1A-8, 33-1-19, 42B5-1-2, 42E1-1-1, 42E2-1-2, 44H3-1-3						
6e(1)	Remove components						
6e(2)	Install components						
6e(3)	Read pneumatic flow diagrams						
6e(4)	Replace hoses						
6e(5)	Replace tubing						
6e(6)	Replace seals						
6e(7)	Fabricate tubing						
6e(8)	Fabricate hoses						
6f	Hydraulics						
	TR: TO 00-25-223, 00-25-229, 1-1A-8, 33-1-19, 42B2-1-3, 42E1-1-1, 42E2-1-2, 44H3-1-3						
6f(1)	Remove components						
6f(2)	Install components						
6f(3)	Read hydraulic flow diagrams						
6f(4)	Replace hoses						
6f(5)	Replace tubing						
6f(6)	Replace seals						
6f(7)	Fabricate tubing						
6f(8)	Fabricate hoses						
6g	Standard Test Equipment						
	TR: TO 31-1-141 Series, 33A1 Series; Applicable owner/user manuals						
6g(1)	Use analog multimeters	3					
6g(2)	Use bridge meters						
6g(3)	Use counters						
6g(4)	Use digital multimeters	3					
6g(5)	Use modulation meters						

6g(6)	Use oscilloscopes						
6g(7)	Use power meters						
6g(8)	Use power supplies						
6g(9)	Use signal generators						
6g(10)	Use voltmeters						
6g(11)	Use megohmeters						
6g(12)	Use bonding meter						
6h	Perform operator maintenance on weapon system test equipment						
	TR: TO 33-1-27						
6i	General shop practices						
	TR: TO 00-25-234, 1-1A-14, 1-1A-15, 33D9-61-58-2, 1-1A-1, 1-1A-8						
6j	General Maintenance						
6j(1)	Repair equipment panels and cases						
6j(2)	Perform safety wiring						
6j(3)	Repair wiring						
6j(4)	Repair general connectors						
6j(5)	Repair shielded and coaxial connectors						
6j(6)	Perform cable binding and lacing						
6j(7)	Repair crimped electrical connections						
6j(8)	Qualify solderless wire wrapping Tool Kit (TK-148/g)						
6j(9)	Perform wire wrapping						
6j(10)	Perform systematic troubleshooting						
6j(11)	Perform electronic part replacement and repair						
6j(12)	Repair electrical contact strips						
6j(13)	Perform printed circuit board handling and storage procedures	3					
6k	Perform electrostatic discharge control procedures	3					
6l	Preventive maintenance						
6l(1)	Perform visual inspections						
6l(2)	Clean electronic equipment						
6m	Emergency breathing apparatus						
	TR: TO 14P4-9-31, 14P4-10-1, 14S5-30-2, 14S5-32-1, 14S5-11-11, 14S5-16-1, 14S5-18-1, 14P5-3-1, 14S5-29-1, 14S5-19-11						
6m(1)	Perform periodic maintenance						
6m(2)	Troubleshoot						
6m(3)	Repair						
6m(4)	Operate						
6m(5)	Self Contained Atmospheric Protective Ensemble (SCAPE)						
	TR: Local training course						
6m(5a)	Describe						

6m(5b)	Checkout/Operate						
6m(6)	Emergency response equipment						
	TR: TOs 21M-LGM30G-2-33, 21-LG118A-2-32, OO-ALC 91-1, Manufacturer's guide, wing emergency response plan						
6m(6a)	Level A suit						
6m(6a1)	Inspect						
6m(6a2)	Use						
6m(6b)	Air skid						
6m(6b1)	Inspect						
6m(6b2)	Service						
6m(6b3)	Operate						
6n	Bench stock items						
	TR: AFMAN 67-1; AFSPCI 21-0114; ACCI 21-101						
6n(1)	Issue						
6n(2)	Inventory						
6n(3)	Maintain						
6o	Electronic Principles						
	TR: TO 31-1-141 Series						
6o(1)	Isolate faulty components						
6o(1a)	Basic circuits						
6o(1b)	Resistors						
6o(1c)	Relays/solenoids						
6o(1d)	Capacitors						
6o(1e)	Semi-conductors						
6o(1f)	Inductors						
6o(1g)	Transformers						
6p	RFI / EMI Gaskets						
	TR: TO 21M-LGM30F-112						
6p(1)	Inspect	3					
6p(2)	Repair						
6q	Terminal Swagger Kit						
	TR: TO 33A2-16-3-1						
6q(1)	Operate						
6q(2)	Service						
6r	Portable cable terminal pull tester						
	TR: TO 33A8-4-6-1						
6r(1)	Operate						
6r(2)	Service						

7	***CRANE LORAINE/DEVAULT/WARREN/NATIONAL***						
	TR: TOS 36C-5-15-1, 35D36-1-102, 21M-LGM30G-2-18-3, 35D36-2-2, Owner's Manuals/LJG 20 AF-95-002, AFOSH 91-46						
7a	Inspect						
7b	Repair components						
7c	Troubleshoot components						
7d	Proofload						
8	***VEHICLE AND EQUIPMENT CONTROL***						
	TR: AFSPCI 21-0114						
8a	Perform preoperational checkout of						
8a(1)	Payload Transporter (PT)						
	TR: TOs 36A9-8-49-1, 21M-LGM30G-2-33, 36A9-8-58-1						
8a(2)	Mechanical Maintenance Truck						
	TR: TOs 21M-LGM30G-2-10 (-1), 35D4-7-4-2, 36A12-24-3-1						
8a(3)	Missile Guidance and Control Set Support Truck						
	TR: TOs 21-LG118A-2-10, 21-LG118A-2-34, 36A13-31-1						
8a(4)	Periodic Maintenance Van						
	TR: TO 36A9-8-56-1						
8b	Operate hoist in						
8b(1)	Payload Transporter						
	TR: TOs 36A9-8-49-1, 21M-LGM30G-2-33, 36A9-8-58-1						
8b(2)	Mechanical Maintenance Truck						
	TR: TOs 21M-LGM30G-2-10 (-1), 35D4-7-4-2, 36A12-24-3-1						
8b(3)	Missile Guidance and Control Set Support Truck						
	TR: TOs 21-LG118A-2-10, 21-LG118A-2-34, 36A13-31-1						
8b(4)	Periodic Maintenance Van						
	TR: TO 36A9-8-56-1						
8c	Forms/records						
	TR: TOs 00-20-1, 00-20-2, 00-20-6, 00-20B-5, 00-25-245, 33D9-68-30-1, 36-1-58						
8c(1)	Initiate						
8c(2)	Maintain						
8d	Vehicles						
8d(1)	Perform daily inspections of						
	TR: AFI 24-301						
8d(1a)	General purpose vehicles						
	TR: TO 36-1-23						

8d(1b)	Special purpose vehicles						
	TR: TOs 35D4-7-4-2, 36A9-8-49-1, 36A12-24-3-1, 36A13-31-1, 36A9-8-58-1						
8d(2)	Track vehicle status/location						
8d(3)	Schedule vehicles for inspection/repair						
8e	Equipment						
8e(1)	Store/Issue equipment						
8e(2)	Track equipment status/location						
8f	Nitrogen bottles						
	TR: TO 36A9-8-49-1, 36A9-8-58-1, 42B5-1-1-2						
8f(1)	Install in purge manifold						
8f(2)	Remove from purge manifold						
8f(3)	Drain						
8g	Perform self test on						
8g(1)	Multimeter						
	TR: TO 33A1-12-2-1, 33A1-12-933-1, 33A1-12-1059-1; Applicable owner/user manual						
8g(2)	Explosive set circuitry test set						
	TR: TO 33D9-38-15-1, 33D9-38-15-21						
8h	Cylinder gauge assembly						
	TR: TO 42B-1-12						
8h(1)	Connect						
8h(2)	Operate						
8i	Configure vehicles with equipment for the following:						
	TR: Applicable weapon system TO; configuration load lists						
8i(1)	MMT dispatches						
8i(2)	EMT dispatches						
8i(3)	FMT dispatches						
8i(4)	PNEU dispatches						
8j	Equipment recovery						
	TR: TO 00-24-245, 1-1A-8, 00-25-234, 11N-HRV-5022-2						
8j(1)	Inspect equipment						
8j(2)	Repair equipment						
8j(3)	Process equipment						
9	***TRAINER MAINTENANCE OPERATION***						
9a	Launch Facility trainer						
9a(1)	AN/GSQ-T8 and AN/GSQ-T9						
	TR: TO 43D2-3-27-1						

9a(1a)	Perform startup, shutdown, emergency shutdown, and						
	startup after inadvertent shutdown						
9a(1b)	Perform inspection and lubrication of trainer						
9a(1c)	Perform checkout, trouble analysis and repair of the following						
	trainer unique equipment						
9a(1c1)	Security system						
9a(1c2)	OGE power and systems						
9a(1c3)	Communication system						
9a(1c4)	Instructor control panel						
9a(1c5)	Ground G&C liquid cooling system						
9a(1c6)	Distribution box						
9a(1c7)	Simulated environmental control system						
9b	AN/GSQ-T10, AN/GSQ-T13, and AN/GSQ-T41						
	TR: TO 43D2-3-81-1, 43D2-3-55-1						
9b(1a)	Perform startup, shutdown, emergency shutdown, and						
	startup after inadvertent shutdown						
9b(1b)	Perform inspection and lubrication of trainer						
9b(1c)	Perform checkout, trouble analysis and repair of the following						
	trainer unique equipment						
9b(1c1)	Security system						
9b(1c2)	OGE power and systems						
9b(1c3)	Communication system						
9b(1c4)	Instructor control panel						
9b(1c5)	Ground G&C liquid cooling system						
9b(1c6)	GMSR system						
9b(1c7)	Distribution box						
9c	Launch Facility trainer (A/F 24A-T2)						
	TR: TO 43D2-10-3-1, 43D2-10-3-2						
9c(1)	Inspect trainer						
9c(2)	Repair trainer						
9c(3)	Lubricate trainer						
9c(4)	Perform startup, shutdown and emergency shutdown						
9d	Launch Facility operational support equipment (AF 24A-T4)						
	TR: TO 43D2-10-3-1, 43D2-10-3-2						
9d(1)	Inspect						
9d(2)	Repair						
9d(3)	Perform startup, shutdown and emergency shutdown						

9e	Training guided missile set (A/E37A-T47)						
	TR: TO 43D2-3-18-1						
9e(1)	Perform checkout, trouble analysis, and repair of trainer						
9e(2)	Perform inspections						
9f	Perform checkout, trouble analysis, and repair of code change verifier set (AN/DJW-36T1A)						
	TR: TO 43D2-3-18-1						
9g	Missile Guidance Set trainer (AN/DJW-36T1)						
	TR: TO 43D2-3-73-1						
9g(1)	Perform checkout, trouble analysis, and repair						
9g(2)	Perform inspections						
9h	Propulsion system rocket engine trainer (A/A44A-4T1)						
	TR: TO 43D2-3-72-1						
9h(1)	Perform checkout, trouble analysis, and repair						
9h(2)	Perform inspections						
9i	Control monitor procedures trainer (AN/GSQ-T46/T47/T48/T49)						
	TR: TO 43D2-3-93-1						
9i(1)	Operate trainer						
9i(2)	Perform installation, adjustment, checkout, trouble analysis, inspection, and repair						
9j	Environmental control system/power procedures trainer(A/F37FU-T19/T22/T24/T25)						
	TR: TO 43D2-3-84-1, 43D2-3-89-1, 43D2-3-91-1, 43D2-3-92-1						
9j(1)	Perform startup, shutdown, and emergency shutdown						
9j(2)	Perform checkout, trouble analysis, repair, adjustment, and inspection of the following trainer unique equipment						
9j(2a)	Instructor control panel						
9j(2b)	Intercommunication system						
9j(2c)	Load bank						
9j(2d)	Simulated electronic rack						
9j(2e)	DC power supply PS-500						
9j(2f)	Transfer control panel						
9j(3)	Perform checkout trouble analysis, repair, adjustment, and inspection of trainer unique circuitry/mechanical devices						
9k	Perform checkout, trouble analysis, and repair of Minuteman III reentry system trainer (A/E32U-T4)						
	TR: TO 43D2-3-67-1						
9l	Missile guidance and control set (P/N 14900-201-1)						
	TR: TO 43D32-2-3-1						
9l(1)	Inspect						
9l(2)	Repair						

9m	Operate digital computer system model PC380-AA						
	TR: TO 43D2-10-3-1, 43D2-10-3-2						
9n	Sump pump trainers, Minuteman/Peacekeeper (A/F 374-T25)						
	TR: CEM 21-SM80B-2-24-4, 21-LG118A-2-28, 43D2-3-92-1, 43D2-3-97-1, 43D2-3-84-1						
9n(1)	Inspect/operate						
9n(2)	Perform checkout						
9n(3)	Troubleshoot						
9n(4)	Repair						
9o	Third Stage Trainer						
	TR: TO 21MLGM30F-2-17-5						
9o(1)	Checkout						
9o(2)	Troubleshoot						
9o(3)	Repair						
9o(4)	Inspect						
9p	Operate Code Change Verifier Simulator (SM-876/G)						
	TR: TO 43D2-3-18-1						
10	***QUALITY ASSURANCE***						
10a	Technical data						
	TR: AFPD 21-3; AFSPCIs 10-204, 21-0114, 21-0108, ACCI 21-101, TOs 00-5-1, 00-5-2						
10a(1)	Review/process AFTO Forms 22 and AFSPC Form 272						
10a(2)	Review all new and revised technical data and standard publications for completeness and technical accuracy						
10a(3)	Review supplements and maintenance OIs for accuracy, intent, and necessity						
10b	TCTO, MCLs, and modifications						
	TR: AFSPCIs 10-204, 21-0108, 21-0114, ACCI 21-101						
10b(1)	Review for applicability, training, supplies, and equipment requirements						
10b(2)	Determine sampling size and perform random inspections						
10b(3)	Conduct final review of TCTO/MCLs submitted by Logistics Group						
10c	Management inspections						
	TR: AFSPCIs 10-204, 21-0108, 21-0114, ACCI 21-101						
10c(1)	Conduct activity inspections						
10c(2)	Conduct special inspections						
10d	Hardware inspections						
	TR: AFSPCIs 10-204, 21-0114						
10d(1)	Conduct hardware equipment inspection						
10d(2)	Conduct hardware acceptance inspection						

10e	Proficiency evaluations						
	TR: AFSPCIs 10-204, 21-0108, 21-0114						
10e(1)	Conduct personnel proficiency evaluations						
10e(2)	Conduct proficiency verification evaluations						
10e(3)	Conduct trainer proficiency evaluations						
10e(4)	Conduct RIVET MILE observations						
10f	Inspection reports						
	TR: AFSPCIs 10-204, 21-0108, 21-0114, ACCI 21-101						
10f(1)	Document inspections						
10f(2)	Prepare inspection reports						
10g	Evaluate deferred discrepancies						
	TR: AFSPCIs 10-204, 21-0114						
10h	Training						
	TR: AFSPCI 21-0114						
10h(1)	Conduct MEP orientation course						
10h(2)	Conduct DR course						
10h(3)	Conduct production inspector course						
10h(4)	Conduct technical data course						
	TR: TO 00-5-1, 00-5-2						
10i	Deficiency Reporting						
	TR: TO 00-35D-54; AFMAN 67-1						
10i(1)	Identify deficiencies						
10i(2)	Process deficiency reports						
11	***MISSILE MAINTENANCE OPERATIONS CENTER (MMOC)***						
11a	Understand security enhancement procedures and site security procedures						
	TR: AFSPCIs 21-0114, 31-1101						
11b	Use the maintenance priority system						
	TR: AFSPCI 21-0114						
11c	Accept, evaluate, and respond to reports from LFs/MAFs						
	TR: TOs 21M-LGM30X-2-1-X, 21-LG118A-2-1						
11d	Monitor, update, and delete maintenance data for priorities 1 - 4						
	TR: AFSPCI 21-0114; TO 33D9-61-76-1						
11e	Coordinate with Material Control on priority changes, PMCS, NMCS, and MICAP conditions						
	TR: AFSPCI 21-0114						
11f	Coordinate and document maintenance on and off base						
	TR: AFSPCI 21-0114						

11g	Coordinate unscheduled dispatches						
	TR: AFSPCI 21-0114; TO 33D9-61-76-1						
11h	Monitor critical equipment and vehicle status						
	TR: AFSPCI 21-0114; TO 33D9-61-76-1						
11i	Coordinate and document cannibalization procedures						
	TR: TO 00-2-2, 33D9-61-76-1; AFSPCI 21-0114						
11j	Perform EWO actions						
	TR: AFSPCI 21-0114; SRR OPLAN 55; Local wing OPLANs						
11j(1)	Senior controller						
11j(2)	Weapons system controller						
11k	Use procedural, situational, and EWO checklists to						
	TR: AFSPCI 21-0114						
11k(1)	Coordinate disaster response actions						
	TR: Local OPLAN directive						
11k(2)	Coordinate movement of and emergency procedures for						
11k(2a)	Stage IV						
	TR: Local OPLAN directive						
11k(2b)	PSRE						
	TR: Local OPLAN directive						
11k(2c)	Reentry Systems						
	TR: Local OPLAN directive; AFSPCI 31-1101						
11k(2d)	Missile						
	TR: Local OPLAN directive						
11k(3)	Perform actions in support of Missile Potential Hazard (MPH) conditions						
	TR: AFSPCI 21-0114						
11l	Coordinate with BCE on RPIE maintenance requirements and interruptions of normal commercial power						
	TR: AFSPCI 21-0114						
11m	Coordinate and document airborne launch and control systems tests						
	TR: ALCC Log; TOs 21M-LGM30X-2-1-X, 21-LG118A-2-1						
11n	Coordinate and document code change action						
	TR: AFSPCI 91-1005; TOs 21M-LGM30G-2-1-X, 21-LG118A-2-1						
11o	Perform actions required of severe weather, snow, ice, and flood control plans						
	TR: Local OPLAN directives						
11p	Perform support battle staff maintenance duties						
	TR: Local OPLAN directives						

11q	Report wing status						
	TR: AFSPCI 21-0103; TO 33D9-61-76-1; MCR 55-8						
11r	Use STU III						
	TR: Operating Manual						
12	***PLANS AND SCHEDULING***						
	TR: AFSPCI 21-0114						
12a	Planning						
12a(1)	Plan, coordinate, and compile maintenance forecasts						
12a(2)	Plan and coordinate						
12a(2a)	SELM/SELP						
12a(2b)	Code change						
12a(2c)	TCTO/MCL modification program						
12a(2d)	EWO generation meeting						
12a(2e)	Periodic maintenance program						
12a(2f)	RIVET Mile programs						
12a(2g)	Perform AVDO Functions						
12b	Scheduling						
12b(1)	Plan and schedule the use and maintenance of vehicles and equipment						
12b(2)	Coordinate jobs in conjunction with Job Control using appropriate work center requirements						
12b(3)	Develop daily work packages						
12b(4)	Conduct daily scheduling meetings						
13	***BRIEFING/DEBRIEFING***						
	TR: AFSPCI 21-0114						
13a	Brief work packages, site discrepancies, current road and weather conditions, and related information to						
13a(1)	On base shop personnel						
13a(2)	Dispatching personnel/teams						
13b	Debrief work packages, site discrepancies, and related information from						
13b(1)	On base shop personnel						
13b(2)	Dispatching personnel/teams						
13c	Assign, verify, and change maintenance priorities using the maintenance priority system						
13d	Forward LF site inspections and inventory forms to the proper agencies for review						
13e	Maintain currency of record copy of Site Workload Requirements/ Equipment Workload Requirements (SWR/EWR)						
13f	Perform SWR/EWR reconciliations with applicable agencies						

14	***TECHNICAL ENGINEERING***						
14a	Use technical data, special drawings, engineering data, and other data as applicable						
	TR: Special contractor data; depot instructions; CE technical data; "as built" drawings; engineering data; Inertial Performance Data (IPD); Launch Facility Activity Data (LFAD)						
14b	Conduct engineering studies						
	TR: AFSPCI 21-0114; Applicable technical data						
14c	Evaluate applicable Engineering Change Proposals (ECPs) and Facility Change Proposals (FCPs)						
	TR: AFSPCI 21-0114; Applicable technical data						
14d	Perform technical assistance and/or analysis for system effectiveness						
	TR: Applicable technical data						
14e	Perform technical engineering EWO planning duties						
	TR: Local directives						
14f	Perform Disaster Control Group Team duties						
	TR: Local O-Plan directives						
14g	System anomalies						
	TR: Applicable technical data						
14g(1)	Troubleshoot						
14g(2)	Use special engineering test equipment						
14g(3)	Document faults and dispatches						
15	***TO LIBRARY***						
	TR: RM 1103; TOs 00-5-1, 00-5-2-2, 00-5-2-102, 00-5-17						
15a	Maintain and generate products from ATOMS data base						
15b	Process and control technical order, CEM , and CPIN distribution						
15c	Maintain initial distribution requirements						
15d	Perform routine, annual, and other required checks						
15e	Post TO						
15e(1)	Revisions						
15e(2)	Changes						
15e(3)	Supplements						
15e(3a)	Safety						
15e(3b)	Operational						
15e(3c)	Routine						
15e(3d)	TOPS						
15e(3e)	ITPS						
15e(3f)	TOFCN/VB pages						
15f	Post CEM						

15f(1)	Revisions						
15f(2)	Changes						
15f(3)	CEMICs						
15g	A-Page TO, CEM						
15h	Maintain task documents						
15h(1)	Revision and supplements						
15h(2)	RM 150 Change requests						
15h(3)	RM 150 logs						
15i	Maintain other support documents						
15i(1)	CPIN						
15i(2)	Task requirement documents						
15i(3)	Task flow documents						
15j	Issue/sign-in TO, CEM, and dispatch kits						
16	***MAINTENANCE PROGRAMS***						
	TR: AFIs 38-101, 38-201; AFSPCI 21-0114						
16a	Manpower						
16a(1)	Monitor adequacy of assigned and authorized positions						
16a(2)	Advise maintenance managers of overall manpower positions						
16a(3)	Initiate manpower change requests						
16b	Mission Support Equipment (MSE)						
	TR: AFMAN 67-1						
16b(1)	Monitor authorized and assigned MSE						
16b(2)	Ensure MSE is requisitioned by the appropriate custodian						
16b(3)	MSE allowance authorization change request						
16b(3a)	Review, evaluate, and coordinate						
16b(3b)	Approve/Disapprove						
16b(4)	Complete allowance document files						
16b(5)	Plan and accomplish acquisition/deletion of MSE for system modifications						
16b(6)	Assist equipment custodians						
16b(7)	Monitor Maintenance Complex CA/CRLs						
16c	Facility management						
16c(1)	Manage facility program						
16c(2)	Monitor and act upon requests for new/additional facilities or alterations of existing facilities						
16c(3)	Coordinate with work centers						
16d	Resource management						
16d(1)	Monitor and control expenditure of funds						
16d(2)	Plan and budget for financial requirements						
16d(3)	Add financial requirements to long range plans						

16e	OPLAN monitor						
16e(1)	Develop, coordinate, and distribute OPLANs within the maintenance complex						
16e(2)	Coordinate and review						
16e(2a)	OPLANs from outside agencies						
16e(2b)	Feasibility studies						
16e(2c)	Host-tenant and Interservice Support Agreements						
16f	Review/Update/Maintain LG Battle Staff checklists						
17	***ICBM CODES VAULT***						
17a	Lock/Alarm class A vault door						
	TR: AFI 31-209; TO 00-20F-2; SD 501-12, AFSPCI 91-1005						
17b	Maintain security of division containers, locks/combinations						
	TR: AFPD 31-1, 31-4; AFI 31-401						
17c	Maintain visitor control						
	TR: SD 501-12, AFSPCI 91-1005						
17d	Maintain code controller operations records						
	TR: SD 501-12, AFSPCI 91-1005						
17e	Comply with system control/requirements for						
	TR: SD 501-12, AFSPCI 91-1005						
17e(1)	WCPS						
17e(2)	20 year spares						
17e(3)	HCVE						
17e(4)	Master tapes/cartridges/discs						
17e(5)	LCP/keys						
17e(6)	LECG/EP (LG118A)						
17e(7)	LEP						
17e(8)	CCV/CSD(M)						
17e(9)	CCV/SCD (LG118A)						
17e(10)	P Plug						
17e(11)	KVP (LG118A)						
17e(12)	LFLC						
17e(13)	MCLC/LCLC/KCLC (LG118A)						
17e(14)	LFOC						
17e(15)	WSC/MCG Pen C/D Tapes (LG118A)						
17e(16)	Status Authentication System components						
17e(17)	Program tapes/cartridges/discs						
17e(18)	Target materials and execution plans						
	TR: AFI 10-1102						
17e(19)	WSC (LG118A)						

17e(20)	MCG (LG118A)						
17e(21)	LVP/COOP panel/keys (LG118A)						
17e(22)	TDIs						
17e(23)	CSD(G)						
17e(24)	IMU tapes						
17e(25)	GRP MGS Parameters data						
17e(26)	MGCS parameter tapes (LG118A)						
17e(27)	CTU (C631A)						
17e(28)	LCSC (LG118A)						
17e(29)	LCMU (LG118A)						
17e(30)	Tape transport (C-164A)						
17e(31)	MCU						
17e(32)	MGS computer						
17e(33)	MGC Computer (GRP)						
17e(34)	MGCS computer (LG118A)						
17e(35)	WCPS computer						
17e(36)	Sumcheck controls						
17e(37)	Off base training LF						
17e(38)	Test components						
17e(39)	Code change procedures						
17e(40)	SELM						
17e(41)	SELP (LG118A)						
17e(42)	Encryption PROMS						
17e(43)	Failed "Red Sensitive" WCPS console spares						
17e(44)	WCPS APM (KIV-42) (LG118A)						
17e(45)	LF APMs (KIV-42) (LG118A)						
17f	Documentation						
	TR: AFI 33-322, 37-138, SD 501-12, AFSPCI 91-1005						
17f(1)	Establish and maintain files						
17f(2)	File and locate records						
17f(3)	Classify and control records						
17f(4)	Maintain component control records						
17f(5)	Maintain WCPS operation records						
17f(6)	Maintain receipt/disposition records						
17g	Follow emergency procedures for						
17g(1)	Possible Code Compromise (PCC)						
	TR: SDs 501-11, 501-12, AFSPCI 91-1005						
17g(2)	Two-person concept violations						
	TR: AFI 91-101, 91-104						

17g(3)	Single flight/ECC						
	TR: AFI 91-114; SD 501-11						
17g(4)	Lateral coding						
	TR: SD 501-11						
17g(5)	Emergency evacuation/destruction						
	TR: SD 501-11						
17g(6)	Violations of code handling procedures						
	TR: SDs 501-11, 501-12, AFSPCI 91-1005						
17g(7)	Possible compromise to Tamper Detection Indicator (TDI) technology						
	TR: SDs 501-11, 501-12, AFSPCI 91-1005						
17h	Code components, programs, and misc. materials						
	TR: SD 501-12, AFSPCI 91-1005						
17h(1)	Receipt for materials						
17h(2)	Store materials						
17h(3)	Inventory materials						
17h(4)	Dispose of materials						
17h(5)	Transfer materials						
17h(6)	Select and assign materials for						
17h(6a)	WCPS use only						
17h(6b)	Squadron use						
17h(6c)	LCC use						
17h(6d)	LF use						
17h(7)	Monitor availability of materials						
17h(8)	Identify, classify, and mark materials						
	TR: AFI 31-401						
17i	Field requirements						
	TR: SD 501-12, AFSPCI 91-1005						
17i(1)	Operational/test code configuration						
17i(1a)	Monitor code requirements/status						
17i(1b)	Coordinate job requirements						
17i(1c)	Maintain work status boards						
17i(2)	Team dispatch/recovery						
	TR: SD 501-12, AFSPCI 91-1005						
17i(2a)	Prepare materials/equipment for issue						
17i(2b)	Identify and brief team						
17i(2c)	Apply issue restrictions						
17i(2d)	Recover materials						
17i(3)	Status of Field Teams						

17i(3a)	Monitor transport of material						
17i(3b)	Monitor transfer of material						
17i(3c)	Monitor field storage of material						
17i(3d)	Monitor installation of materials						
17i(3e)	Validate CMSC from LF						
17i(3f)	Validate VN from LF						
17i(3g)	Validate WSC/MCG CMCC from LCC						
17i(3h)	Install/inspect/remove TDIs						
17j	Equipment configuration						
	TR: TO 31X8-2-2-1						
17j(1)	Load/unload MTC						
17j(2)	Load/unload punched mylar tape						
17j(3)	Install/remove LECG test adapter						
17j(4)	Install/remove LECG/EP						
17j(5)	Install/remove LEP						
17j(6)	Install/remove MCU and reset tamper mechanism						
17j(7)	Install/remove MCU (MCU encoder)						
17j(8)	Install/remove C-164A tape transport						
17j(9)	Install/remove WSC test adapter						
17j(10)	Install/remove WSC processor drawer (LG118A)						
17j(11)	Install/remove WSC memory drawer (LG118A)						
17j(12)	Install/remove MCG test adapter						
17j(13)	Install/remove MCG controller-synchronizer (LG118A)						
17j(14)	Install/remove MCG drum (LG118A)						
17j(15)	Degauss MTC/7-track/9-track magnetic tape						
	TR: TO 33D9-104-31-2						
17j(16)	Install/remove CSD(G) test adapter						
17j(17)	Install/remove CSD(G) (Code verifier)						
17j(18)	Apply 7/9-track magnetic tape BOT/EOT markers						
17j(19)	Load/place on-line /unload 7/9-track magnetic tape						
17j(20)	Install/remove LCP verifier/test adapter						
17j(21)	Install/remove P Plug test adapter						
	TR: TO 31X8-2-2-2						
17j(22)	Install/remove KVP test adapter (LG118A)						
	TR: TO 31X8-2-2-2						
17j(23)	Install/remove removable disc						
17j(24)	Load KG84A						
17j(25)	Load/adjust/unload printer paper						
17j(26)	Load/remove printer ribbon cartridge						

17k	Equipment checkout						
	TR: TO 31X8-2-2-1						
17k(1)	Clean CTU read/write head						
17k(2)	Inspect MTC						
17k(3)	Condition MTC						
17k(4)	Inspect/clean read head and lamp aperture						
17k(5)	Clean MTU tape deck						
17k(6)	Comply with electrostatic discharge requirements						
	TR: TO 00-25-234						
17k(7)	Perform CCV self test						
17k(8)	Perform MCU functional test						
	TR: TO 31X8-2-2-1						
17l	Shielded enclosure						
	TR: TO 31X8-2-2-1						
17l(1)	Perform SE visual inspection						
17l(2)	Perform SE fire alarm test						
17l(3)	Perform SE environmental test						
17l(4)	Perform SE air pressure and door seal test						
17l(5)	Perform SE communications test						
17m	WCPS power						
	TR: TO 31X8-2-2-1						
17m(1)	Start-up WCPS - normal start procedure						
17m(2)	Start-up WCPS - cold start procedure						
17n	CCOS executive functions						
	TR: TO 31X8-2-2-1, 31X8-2-2-2						
17n(1)	Perform						
17n(1a)	Computer subsystem test						
17n(1b)	CRT/keyboard terminal test						
17n(1c)	Power supplies/ADC test						
17n(1d)	Disc assembly test						
17n(1e)	Line printer test						
17n(1f)	Tape transport test						
17n(1g)	Cartridge drive unit test						
17n(1h)	9-track MTU test						
17n(1i)	KVP interface test (LG118A)						
17n(1j)	7-track MTU test						
17n(1k)	Isolation circuit test						
17n(1l)	Digital clock test						
17n(1m)	KG84A/modem comm link test						

17n(1n)	P-Plug adapter test						
17n(1o)	MCU encoder test						
17n(1p)	Force mod/Peacekeeper LCP test						
17n(1q)	Wing IX LCP test						
17n(1r)	LECG interface test						
17n(1s)	CSD(G) interface test						
17n(1t)	KIV-42 interface test (LG118A)						
17n(1u)	KI-22 interface test						
17n(1v)	MCG interface test						
17n(1w)	CCV interface test						
17n(1x)	MSD/L interface test (LG118A)						
17n(1y)	WSC interface test						
17n(1z)	REACT BS/L test						
17n(1aa)	REACT FDD test						
17n(1ab)	Self test						
17n(1ac)	End item load						
17n(2)	Display equipment status						
17n(3)	Display/reset log file						
17n(4)	Pack system disc						
17n(5)	Prepare new disc						
17n(6)	Display disc ID						
17n(7)	Transmit data via link						
17n(8)	Receive data via link						
17n(9)	Edit link control files						
17n(10)	Perform manual recordkeeping						
17n(11)	Relog (change operator)						
17n(12)	Prepare PVS backup tape						
17n(13)	Verify DC300 program copies						
17n(14)	Verify 9-track program copies						
17n(15)	Select commanded overwrite						
17n(16)	Perform media to media conversion						
17n(17)	Log off (exit) systems						
17n(18)	Inhibit operator input print						
17n(19)	Enable operator input print						
17n(20)	Perform console shutdown						
17n(21)	Change KI-22 keying variable						
17n(22)	Initialize REACT BS/L HDA						
17n(23)	Verify reel to reel tape copies						
17n(24)	Enable telephone						

17n(25)	Convert 9-track to 7-track tapes						
17n(26)	Backup system disk						
17n(27)	Format disc in data drive						
17o	Display main menu (WMAP/WPAP)						
	TR: TO 31X8-2-2-1						
17p	Accomplish master data control (WMAP/WPAP)						
	TR: TO 31X8-2-2-1						
17p(1)	Load A/B cartridge						
17p(2)	Change ITSC pen data						
17p(3)	Load pen data						
17p(4)	Load wing code disc						
17p(5)	Perform KI-22 key change						
17p(6)	Assign pen data to LCF						
17p(7)	Assign pen data to LF						
17p(8)	Display master data						
17p(9)	Load/delete P-Plug						
17p(10)	Rekey KIV-42 (LG118A)						
17p(11)	Assign L prime data (LG118A)						
17p(12)	Load L prime data (LG118A)						
17p(13)	Load F data (LG118A)						
17p(14)	Load/delete KVP (LG118A)						
17p(15)	Load/replenish I code data (REACT)						
17p(16)	Load GRP I code data						
17p(17)	Prepare end item tapes						
17q	Establish support data						
	TR: TO 31X8-2-2-1						
17q(1)	Load MM III WS133AM OGP						
17q(2)	Load MM III WS133B OGP						
17q(3)	Load MM III OFP						
17q(4)	Load MM III overwrite						
17q(5)	Load execution plan						
17q(6)	Load flight constants						
17q(7)	Load OEP						
17q(8)	Load IMU tape						
17q(9)	Load LF offload tapes						
17q(10)	Load GRP OGP/OFP data						
17q(11)	Load GRP MGS parameter data						
17q(12)	Load targeting tape						
17q(13)	Load LF master data						

17q(14)	Load MCG tapes (LG118A)						
17q(15)	Load PK OGP/OFP (LG118A)						
17q(16)	Load mission parameters (LG118A)						
17q(17)	Load MGCS parameters (LG118A)						
17q(18)	Load launch control program (LG118A)						
17q(19)	Load POEP tapes (LG118A)						
17r	Generate and verify data (WMAP/WPAP) for						
	TR: TO 31X8-2-2-1						
17r(1)	WSC Pen C/D tape (LG118A)						
17r(2)	MCG Pen C/D tape (LG118A)						
17r(3)	Fixed data cartridge						
17r(4)	LFLC variable data						
17r(5)	Complete load LFLC (GRP)						
17r(6)	Code change LFLC (GRP)						
17r(7)	Pen D LFLC (GRP)						
17r(8)	LFOC variable data						
17r(9)	Wing code disk						
17r(10)	MECA LFLC (LG118A)						
17r(11)	Keys/codes LFLC (LG118A)						
17r(12)	LCSC LFLC (LG118A)						
17s	Perform the sum checks (WMAP/WPAP)						
	TR: TO 31X8-2-2-1						
17s(1)	MM CMSC						
17s(2)	GRP CMSC						
17s(3)	WSC CMCC						
17s(4)	MCG CMCC						
17s(5)	LCSC CMSC (LG118A)						
17s(6)	MECA CMSC (LG118A)						
17s(7)	Keys/codes CMSC (LG118A)						
17t	Encode and verify devices (WMAP/WPAP)						
	TR: TO 31X8-2-2-1						
17t(1)	Encode and verify LECG (LG118A)						
17t(2)	Encode and verify LEP						
17t(3)	Encode and verify LCP						
17t(4)	Encode and verify CCV						
17t(5)	Perform CCV trace data functions						
17t(6)	Verify CSD(G)						
17t(7)	Encode MCU with shipping code						
17t(8)	Encode SCD (LG118A)						

17u	Data verification						
	TR: TO 31X8-2-2-1						
17u(1)	Perform selective enable verification						
17u(2)	Perform launch verification						
17v	Verify only data functions						
	TR: TO 31X8-2-2-1						
17v(1)	Verify WSC Pen C/D tapes (LG118A)						
17v(2)	Verify MCG Pen C/D tapes (LG118A)						
17v(3)	Verify fixed data cartridges						
17v(4)	Verify LFLC variable data						
17v(5)	Verify GRP complete load LFLC						
17v(6)	Verify GRP code change LFLC						
17v(7)	Verify GRP Pen D LFLC						
17v(8)	Verify LFOC variable data						
17v(9)	Verify wing code disk						
17v(10)	Verify LECG (LG118A)						
17v(11)	Verify LEP						
17v(12)	Verify MECA LFLC (LG118A)						
17v(13)	Verify keys/codes LFLC (LG118A)						
17v(14)	Verify LCSC LFLC (LG118A)						
17w	Display tape ID (WMAP/WPAP)						
	TR: TO 31X8-2-2-1						
17w(1)	Display wing code disk ID						
17w(2)	Display A/B cartridge ID						
17w(3)	Display WSC/MCG pen tape ID						
17w(4)	Display DC300 cartridge ID						
17w(5)	Display MECA LFLC ID (LG118A)						
17w(6)	Display keys/codes LFLC ID (LG118A)						
17w(7)	Display LCSC LFLC ID (LG118A)						
17x	Load and verify devices (REACT)						
	TR: TO 31X8-2-2-1						
17x(1)	Initialize LCF BS/L HDA						
17x(2)	Load/verify LCF BS/L HDA						
17x(3)	Perform LCF BS/L HDA backout CMSC						
17x(4)	Load/verify LCF diskettes						
17x(4a)	Code change diskette						
17x(4b)	EPP/MA database diskette						
17x(4c)	FDM format database diskette						
17x(4d)	TCI/EPCI diskette						

17y	Load WSC (WMAP/WPAP)						
	TR: TO 31X8-2-2-1						
17z	Load and initialize MCG (WMAP/WPAP)						
	TR: TO 31X8-2-2-1						
17aa	Respond to unsuccessful sumchecks						
	TR: TO 31X8-2-2-1						
17aa(1)	Perform MM CMSC backout procedures						
17aa(2)	Perform GRP CMSC backout procedures						
17aa(3)	Perform MM CMCC backout procedures						
17aa(4)	Perform PK CMCC backout procedures						
17aa(5)	Respond to unsuccessful VNs						
	TR: SD 501-12, AFSPCI 91-1005						
17ab	Equipment malfunctions						
	TR: TO 31X8-2-2-1, 31X8-2-2-2						
17ab(1)	Perform corrective actions						
17ab(2)	Restart 7/9-track after power failure						
17ab(3)	Perform WCPS emergency shutdown						
17ab(4)	Perform KG84A emergency operations						
17ab(5)	Perform SCD code erase procedure (LG118A)						
17ac	Administrative communications management						
	TR: AFI 10-1102, 31-401, 37-126, SD 501-12, AFSPCI 91-1005						
17ac(1)	Process official incoming/outgoing communications						
17ac(2)	Process, protect, and destroy classified information						
17ac(3)	Apply classification markings						
17ac(4)	Handle/store/account for classified materials						
17ac(5)	Document/package/process package for courier/classified shipments						

ATTACHMENT 2
AFSC 2M051/2M071 STS
ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
1	***LAUNCH FACILITY, MISSILE ALERT FACILITY AND SUPPORT BASE FACILITIES***						
1a	Launch facility WS133AM/CDB, WS133B/CDB, WS118A						
	TR: TOs 21M-LGM30G-2-10 (-1), 21M-LGM30X-2-7-X, 21-LG118A-2-10, 21M-LGM30F-2-17-9, 21-LG118A-2-17-2						
1a(1)	Enter LER	5					
1a(2)	Enter LSB/LEB	5					
1a(3)	Perform emergency shutdown	5					
1a(4)	Evacuate launch facility for EWO launch conditions	5					
1a(5)	Follow emergency procedures for electrical isolation of LSB/LEB	5					
1a(6)	Restart LF ECS/brine chiller						
1a(7)	Lower equipment	5					
1a(8)	Raise equipment	5					
1a(9)	Exit LER	5					
1a(10)	Exit LSB/LEB	5					
1a(11)	Perform LF hostile securing procedures	5					
1a(12)	Perform LF exit procedures	5					
1b	Personnel access system						
	TR: TOs 21-LG118A-2-19, 21M-LGM30F-2-19, 21-LG118A-2-10, 21M-LGM30G-2-10 (-1)						
1b(1)	Electro-mechanical linear actuator						
1b(1a)	Adjust	5					
1b(1b)	Troubleshoot						
1b(1c)	Repair						
1b(1d)	Replace						
1b(1e)	Service						
1b(2)	Replace folding ladder						
1b(3)	Forced entry of LF						
	TR: TO 35M37-4-12, 21-LG118A-2-19, 21M-LGM30F-2-19						
1b(3a)	Perform break-in procedures for secondary door lockout						
1b(3b)	Perform break-in procedures for security pit lockout						
1b(3c)	Perform nondestructive procedures						
1b(4)	Remove and replace hand driven linear actuator						
1b(5)	Repair personnel access system hardware						
1b(6)	Security pit						
1b(6a)	Repair						

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ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
1b(6b)	Service						
1b(6c)	Perform electrical test						
1b(6d)	Troubleshoot						
1b(7)	Security pit vault door						
1b(7a)	Repair	5					
1b(7b)	Troubleshoot						
1b(8)	Telescoping ladder						
1b(8a)	Inspect	5					
1b(8b)	Repair	5					
1b(8c)	Align						
1b(9)	Alternate opening of LF						
1b(9a)	Perform primary door procedures						
1b(9b)	Perform secondary door procedures						
1b(10)	Secondary door						
1b(10a)	Change lock combination	3					
1b(10b)	Troubleshoot						
1b(10c)	Repair	5					
1b(10d)	Replace						
2	***ELEVATOR WORK CAGE: OPERATE***						
	TR: 21M-LGM30G-2-10(-1), 21-LG118A-2-10						
3	***COMMAND AND CONTROL (WS133AM/CDB)***						
	TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X						
3a	IMU Performance Data						
	TR: TO 33D9-74-42-2						
3a(1)	Repair IPD processor unit						
3a(2)	Repair Communication Equipment Interface Unit (CEIU)						
	TR: TO 21M-LGM30G-2-12-4						
3a(3)	Portable terminal						
	TR: TO 33D9-74-42-2						
3a(3a)	Install						
3a(3b)	Remove						
3b	Repair digital data group						
3c	Command message processing group						
3c(1)	Checkout						
3c(2)	Repair						
3d	Programmer group						

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ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
3d(1)	Checkout	5					
3d(2)	Repair						
3d(3)	Replace keying variable	3					
3e	UHF command radio system						
3e(1)	UHF receiver						
3e(1a)	Checkout						
3e(1b)	Repair						
3e(2)	Inspect antenna						
3f	REACT Console						
3f(1)	Repair						
3f(2)	Checkout						
3f(3)	Replace circuit card	5					
4	***COMMAND AND CONTROL (WS133B/CDB)***						
	TR: TOs 21M-LGM30G-2-1-4, 21M-LGM30G-2-12-X						
4a	LF medium frequency radio system						
4a(1)	Repair						
4a(2)	Troubleshoot						
4b	LF digital data terminal						
4b(1)	Checkout power supply	5					
4b(2)	Repair						
4b(3)	Replace keying variable						
4c	Repair MAF digital data terminal						
4d	MAF medium frequency radio system						
4d(1)	Repair						
4d(2)	Troubleshoot						
4e	IMU Performance Data						
	TR: TO 33D9-74-42-2						
4e(1)	Repair IPD processor unit						
4e(2)	Repair Communication Equipment Interface Unit (CEIU)						
	TR: TO 21M-LGM30G-2-12-4						
4e(3)	Portable terminal						
	TR: TO 33D9-74-42-2						
4e(3a)	Install						
4e(3b)	Remove						
4f	UHF command radio system						
4f(1)	UHF receiver						

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ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
4f(1a)	Checkout						
4f(1b)	Repair						
4f(2)	Inspect antenna						
4g	REACT Console						
4g(1)	Repair						
4g(2)	Checkout						
4g(3)	Replace circuit card	5					
5	**COMMAND AND CONTROL (WS118A)**						
	TR: TOs 21-LG118A-2-1, 21-LG118A-2-12, 21-LG118A-2-12-1						
5a	Launch control facility processor						
5a(1)	Generate case data image tape						
5a(2)	Perform program loading						
5a(3)	Repair						
5a(4)	Replace keying variable						
5b	Replace keyboard printer						
5c	Repair launch enable control group						
5d	IPD processor unit						
5d(1)	Repair						
5d(2)	Portable terminal						
	TR: TO 33D9-74-42-2						
5d(2a)	Install						
5d(2b)	Remove						
5e	Launch control console						
5e(1)	Checkout						
5e(2)	Repair						
5f	Communications control console						
5f(1)	Checkout						
5f(2)	Repair						
5g	Repair digital data group						
5h	Command message processing group						
5h(1)	Checkout						
5h(2)	Repair						
5i	Programmer group						
5i(1)	Checkout	5					
5i(2)	Repair						
5i(3)	Replace keying variable						

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ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
5j	UHF command radio system						
5j(1)	UHF receiver						
5j(1a)	Checkout						
5j(1b)	Repair						
5j(2)	UHF transmitter						
5j(2a)	Checkout						
5j(2b)	Repair						
5j(3)	Inspect antenna						
5k	Launch control system controller						
5k(1)	Computer memory						
5k(1a)	Overwrite LCSC						
5k(1b)	Load LCSC						
5k(1c)	Load MECA	5					
5k(2)	Read out and record local data words						
5k(3)	Perform local tests						
5k(4)	Read out and record IMU maintenance data						
5k(5)	Replace						
6	***INTRASITE CABLING (WS133AM/CDB)***						
	TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-21-X						
6a	LF electrical filter assembly F-1343/ F-1344/F-1345						
6a(1)	Checkout						
6a(2)	Repair						
6a(3)	Troubleshoot						
6b	LCC electrical surge arrester						
6b(1)	Checkout						
6b(2)	Replace						
6c	LF electrical surge arrester						
6c(1)	Checkout	5					
6c(2)	Replace						
6d	Intrasite cables						
6d(1)	Checkout						
6d(2)	Repair						
6d(3)	Certify critical component cables						
	TR: TO 21M-LGM30F-12-1						
6e	LCC interconnecting box						
6e(1)	Checkout						

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ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
6e(2)	Repair						
6f	LF interconnecting box						
6f(1)	Checkout						
6f(2)	Repair						
6f(3)	Troubleshoot						
6g	Perform procedures for isolating and restoring						
	LF and MAF communications						
	TR: TO 21M-LGM30F-12						
6h	Perform LCC command line tone/resistance checkout						
6i	Perform LF command line tone/resistance checkout						
6j	Perform GMR 3 or GMR 5 monitor circuits checkout						
6k	Facility Alarm Protection Assembly/Door Alarm Protection Assembly						
	TR: TO 21M-LGM30G-2-28						
6k(1)	Checkout						
6k(2)	Repair						
6k(3)	Troubleshoot						
7	***INTRASITE CABLING (WS 133B/CDB)***						
	TR: TOs 21M-LGM30G-2-1-9, 21M-LGM30G-2-21-X						
7a	LF electrical filter assembly checkout						
7a(1)	Checkout						
7a(2)	Repair						
7a(3)	Troubleshoot						
7b	LCC electrical surge arrester						
7b(1)	Checkout						
7b(2)	Replace						
7c	LF electrical surge arrester						
7c(1)	Checkout	5					
7c(2)	Replace						
7d	Intrasite cables						
7d(1)	Checkout						
7d(2)	Repair						
7d(3)	Certify critical component cables						
	TR: TO 21M-LGM30F-12-1						
7e	LCC junction box set						
7e(1)	Checkout						

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ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
7e(2)	Repair						
7f	Transformer filter assembly, F-1366/GSW-13						
7f(1)	Checkout						
7f(2)	Repair						
7g	Perform procedures for isolating and restoring LF and MAF communications						
	TR: TO 21M-LGM30F-12						
7h	Facility Alarm Protection Assembly						
	TR: TO 21M-LGM30G-2-28-1						
7h(1)	Checkout						
7h(2)	Repair						
7h(3)	Troubleshoot						
8	***INTRASITE CABLING (WS118A)***						
	TR: TOs 21-LG118A-2-1, 21-LG118A-2-21						
8a	LF electrical filter assembly						
8a(1)	Checkout						
8a(2)	Repair						
8a(3)	Troubleshoot						
8b	LCC electrical filter assembly						
8b(1)	Checkout						
8b(2)	Repair						
8b(3)	Troubleshoot						
8c	MAF electrical surge arrester						
8c(1)	Checkout						
8c(2)	Replace						
8d	LF electrical surge arrester						
8d(1)	Checkout	5					
8d(2)	Replace						
8e	Intrasite cables						
8e(1)	Checkout						
8e(2)	Repair						
8e(3)	Certify critical component cables						
	TR: TO 21M-LGM30F-12-1						
8f	LCC interconnecting box						
8f(1)	Checkout						
8f(2)	Repair						

ATTACHMENT 2
AFSC 2M051/2M071 STS
ICBM ELECTRONIC MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
8g	LF interconnecting box						
8g(1)	Checkout						
8g(2)	Repair						
8g(3)	Troubleshoot						
8h	Perform procedures for isolating and restoring LF and MAF communications						
	TR: TO 21M-LGM30F-12						
8i	Perform LCC command line tone/resistance checkout						
8j	Perform LF command line tone/resistance checkout						
9	***MISSILE ALERT FACILITY WS133AM/CDB, WS133B/CDB, WS118A***						
9a	Launch control center motor generator						
	TR: TOs 21-LG118A-2-11-1, 21M-LGM30G-2-11, 21M-LGM30G-2-11-1						
9a(1)	Start up and load						
9a(2)	Unload and shut down						
9b	Isolate faults						
	TR: TOs 21-LG118A-2-1, 21-LG118A-2-21, 21M-LGM30G-2-1-X, 21M-LGM30G-2-21-X						
9c	Understand the interworking relationship of weapon system subsystems						
	TR: TO 21M-LGM30X-2-1-X, 21M-LGM30X-2-21-X, 21M-LGM30X-2-11, 21M-LGM30X-2-11-1, 21M-LGM30X-1-X,21M-LGM30X-2-12-X, 21-LG118A-2-1, 21-LG118A-2-21, 21-LG118A-2-11-1, 21-LG118A-2-12-1						
9c(1)	Power systems	7					
9c(2)	Command and Control systems	7					
9c(3)	Intrasite cabling systems	7					
9c(4)	Analyze anomalies	7					
9d	Power signal distribution unit						
	TR: TOs 1-1A-14, 21-LG118A-2-1, 21-LG118A-2-11-1, 21-LG118A-2-12-1, 21M-LGM30X-2-1-X, 21M-LGM30X-2-11, 21M-LGM30X-2-11-1, 21M-LGM30X-2-12-X, 31S8-2GYW-1-2, 31X2-56-8-1, 31X3-6-9-1, 31X4-1-102, 31X4-1-142, 31X4-1-152						
9d(1)	Checkout						
9d(2)	Replace						
9e	Replace electrical cabinet						
	TR: TOs 21M-LGM30G-2-12-X, 21-LG118A-2-12-1, 36A12-24-3-1						
9f	Replace operator chair						
	TR: TOs 21M-LGM30G-2-28-X, 21-LG118A-2-28						

10	***COMMON LAUNCH FACILITY MAINTENANCE (WS-133AM/CDB)***						
10a	Isolate faults						
	TR: TOs 21M-LGM30F-2-21-X, 21M-LGM30G-2-1-X						
10b	Understand the interworking relationship of weapon system subsystems						
	TR: TOs 21M-LGM30X-2-1-X, 21M-LGM30X-2-21-X, 21M-LGM30X-1-X, '21M-LGM30X-2-11, 21M-LGM30X-2-11-1, 21M-LGM30X-2-10, 21M-LGM30X-2-12-X, 21M-LGM30X-2-4-X, 21M-LGM30X-2-19						
10b(1)	Power systems	7					
10b(2)	Command and Control systems	7					
10b(3)	Security systems	7					
10b(4)	Missile cooling system	7					
10b(5)	Personnel access system	7					
10b(6)	Intrasite cabling system	7					
10b(7)	Analyze anomalies	7					
10c	Power signal distribution unit						
	TR: TOs 1-1A-14, 21M-LGM30X-2-11, 21M-LGM30X-2-1-X, 21M-LGM30X-2-12-X, 31X2-56-8-1, 31X3-6-9-1, 31X4-1-102, 31X4-1-142						
10c(1)	Checkout						
10c(2)	Replace						
10c(3)	Certify critical component PSDUs						
	TR: TO 21M-LGM30F-12-1						
10d	Perform primary power restart	5					
	TR: TO 21M-LGM30G-2-10						
10e	Perform LER electronic rack power removal						
	TR: TO 21M-LGM30G-2-10						
11	***COMMON LAUNCH FACILITY MAINTENANCE***						
	(WS-133B/CDB)						
11a	Isolate faults						
	TR: TOs 21M-LGM30G-2-1-9, 21M-LGM30G-2-21-X						
11b	Understand the interworking relationship of weapon system subsystems						
	TR: TO 21M-LGM30X-2-1-X, 21M-LGM30X-2-21-X, 21M-LGM30G-2-10-1, 21M-LGM30X-2-11, 21M-LGM30G-2-11-1, 21M-LGM30X-1-X, 21M-LGM30X-2-12-X, 21M-LGM30X-2-4-X, 21M-LGM30X-2-19						
11b(1)	Power systems	7					
11b(2)	Command and Control systems	7					
11b(3)	Security systems	7					
11b(4)	Missile cooling system	7					

11b(5)	Personnel access system	7					
11b(6)	Intrasite cabling system	7					
11b(7)	Analyze anomalies	7					
11c	Power signal distribution unit						
	TR: TOs 1-1A-14, 21M-LGM30G-2-11-1, 21M-LGM30G-2-1-9, 21M-LGM30G-2-12-3, 31X2-56-8-1, 31X3-6-9-1, 31X4-1-102, 31X4-1-152						
11c(1)	Checkout						
11c(2)	Replace						
11c(3)	Certify critical component PSDUs						
	TR: TO 21M-LGM30F-12-1						
12	***COMMON LAUNCH FACILITY MAINTENANCE (WS-LG118A)***						
	TR: TOs 21-LG118A-2-10, 21-LG118A-2-17-2, 21-LG118A-2-4-1, 21-LG118A-2-19						
12a	Isolate faults						
	TR: TOs 21-LG118A-2-1, 21-LG118A-2-21						
12b	Understand the interworking relationship of weapon system subsystems						
	TR: TOs 21-LG118A-2-1, 21-LG118A-2-21, 21-LG118A-2-11, 21-LG118A-2-10, 21-LG118A-2-12, 21-LG118A-2-19, 21-LG118A-2-4						
12b(1)	Power systems	7					
12b(2)	Command and Control systems	7					
12b(3)	Security systems	7					
12b(4)	Personnel access system	7					
12b(5)	Intrasite cabling system	7					
12b(6)	Analyze anomalies	7					
12c	Power signal distribution unit						
	TR: TOs 1-1A-14, 21-LG118A-2-1, 21-LG118A-2-11, 21-LG118A-2-12, 31X31X2-56-8-1, 3-6-9-1, 31X-1-102, 31X4-1-142						
12c(1)	Checkout						
12c(2)	Replace						
12c(3)	Certify critical component PSDUs						
	TR: TOs 21-LG118A-12-1						
12d	Perform primary power restart	5					
12e	Perform LER electronic rack power removal						
12f	Perform LF monitor power application						
13	***MISSILE (WS133AM/CDB, WS133B/CDB)***						
	TR: TOs 21M-LGM30G-2-12-X, 21M-LGM30G-2-1-X						
13a	Change command signal decoder (M) code	3					
13b	Downgrade computer memory information	3					
13c	Perform normal shutdown AVE/OGE	3					

13d	Start up AVE/OGE	3					
13e	Load computer memory	3					
13f	Read out and record local data words	3					
14	***MISSILE (WS118A)***						
	TR: TOs 21-LG118A-2-1, 21M-LG118A-2-12						
14a	Perform normal shutdown AVE/OSE						
14b	Start up AVE/OSE	5					
15	***MISSILE GUIDANCE SET COOLING SYSTEM***						
	TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-6						
15a	Checkout	3					
15b	Troubleshoot						
15c	Repair						
15d	Service						
16	***POWER SYSTEM (WS133AM/CDB)***						
	TR: TOs 21M-LGM30G-2-11, 21M-LGM30G-2-1-X; CEMs 21-SM80X-2-21-X, 21M-LGM30X-2-21-X						
16a	LCC storage batteries						
16a(1)	Checkout						
16a(2)	Replace						
16a(3)	Service						
16a(4)	Troubleshoot						
16a(5)	Isolate						
16b	LF storage batteries						
16b(1)	Checkout	3					
16b(2)	Replace	5					
16b(3)	Service						
16b(4)	Troubleshoot						
16c	LF battery charger set						
16c(1)	Checkout	3					
16c(2)	Replace	5					
16c(3)	Troubleshoot						
16d	Operate diesel electric unit						
16e	LCC distribution box						
16e(1)	Checkout						
16e(2)	Repair						
16f	LF distribution box						
16f(1)	Checkout						
16f(2)	Repair						
16f(3)	Troubleshoot						

16f(4)	Certify						
	TR: TO 21M-LGM30F-12-1						
16g	LCC motor generator set						
16g(1)	Checkout	5					
16g(2)	Repair						
16g(3)	Replace						
16g(4)	Service						
16g(5)	Troubleshoot						
16h	LF motor generator set						
16h(1)	Checkout	5					
16h(2)	Repair						
16h(3)	Replace						
16h(4)	Service						
16h(5)	Troubleshoot						
16h(6)	Replace MG DC circuit breaker						
	TR: TO 21M-LGM30G-2-11						
16i	Perform power fault to ground check						
16j	Restore power						
16k	LCC power supply group						
16k(1)	Checkout	3					
16k(2)	Repair						
16k(3)	Troubleshoot						
16l	LF power supply group						
16l(1)	Checkout	3					
16l(2)	Repair	5					
16l(3)	Troubleshoot						
16m	Operate Pre-installation Test Set (PITS)						
	TR: TO 21M-LGM30G-2-11						
17	***POWER SYSTEM (WS133B/CDB)***						
	TR: TOs 21M-LGM30G-2-1-9, 21M-LGM30G-2-11-1, 21M-LGM30G-2-21-6, 21-SM80X-2-21-X						
17a	LCC storage batteries						
17a(1)	Checkout						
17a(2)	Replace						
17a(3)	Service						
17a(4)	Troubleshoot						
17a(5)	Isolate						
17b	LF storage batteries						
17b(1)	Checkout	5					

17b(2)	Replace	5					
17b(3)	Service						
17b(4)	Troubleshoot						
17c	LCC battery charger set (32 volt)						
17c(1)	Checkout						
17c(2)	Repair						
17c(3)	Troubleshoot						
17d	LCC battery charger set (160 volt)						
17d(1)	Checkout						
17d(2)	Repair						
17d(3)	Troubleshoot						
17e	Operate diesel electric unit						
17f	LF distribution box						
17f(1)	Checkout						
17f(2)	Repair						
17f(3)	Troubleshoot						
17f(4)	Certify						
	TR: TO 21M-LGM30F-12-1						
17g	Fault locator indicator drawer						
	TR: TO 21M-LGM30G-2-12-3						
17g(1)	Checkout						
17g(2)	Replace						
17h	LCC motor generator set						
17h(1)	Checkout	5					
17h(2)	Repair						
17h(3)	Replace						
17h(4)	Service						
17h(5)	Troubleshoot						
17i	LF motor generator set						
17i(1)	Checkout	5					
17i(2)	Repair						
17i(3)	Replace						
17i(4)	Service						
17i(5)	Troubleshoot						
17j	Perform power fault to ground check						
17k	Shut down LF power system						
17l	Start up LF power						
17m	LCC power distribution group						
17m(1)	Checkout						

17m(2)	Repair						
17m(3)	Troubleshoot						
17n	Power Supply Set (6409)						
17n(1)	Checkout	5					
17n(2)	Repair	5					
17n(3)	Troubleshoot						
17o	Power Supply Set (6521)						
17o(1)	Checkout						
17o(2)	Repair						
17o(3)	Troubleshoot						
18	***POWER SYSTEM (WS118A)***						
	TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-11, 21-LG118A-2-11-1, 21-LG118A-2-21; CEM 21-SM80B-2-21-4						
18a	LCC storage batteries						
18a(1)	Checkout						
18a(2)	Replace						
18a(3)	Service						
18a(4)	Troubleshoot						
18a(5)	Isolate						
18b	LF storage batteries						
18b(1)	Checkout	5					
18b(2)	Troubleshoot						
18b(3)	Replace	5					
18b(4)	Service						
18c	Operate diesel electric unit						
18d	LCC distribution box						
18d(1)	Checkout						
18d(2)	Repair						
18e	LF distribution box						
18e(1)	Checkout						
18e(2)	Repair						
18e(3)	Troubleshoot						
18e(4)	Certify						
	TR: TO 21M-LGM30F-12-1						
18f	LCC motor generator set						
18f(1)	Checkout	5					
18f(2)	Repair						
18f(3)	Replace						
18f(4)	Service						

18f(5)	Troubleshoot						
18g	LCC power supply group						
18g(1)	Checkout						
18g(2)	Repair						
18g(3)	Troubleshoot						
18h	LF power supply group						
18h(1)	Checkout	5					
18h(2)	Repair	5					
18i	AC/DC converter						
18i(1)	Checkout	5					
18i(2)	Repair						
18j	Cooling drawer assembly						
18j(1)	Checkout						
18j(2)	Repair						
18k	LF power system						
18k(1)	Shutdown						
18k(2)	Startup						
19	**SECURITY SYSTEM WS133AM/CDB, WS133B/CDB, WS118A**						
	TR: TOs 21M-LGM30F-2-4-X, 21M-LGM30F-2-19, 21M-LGM30G-2-1-X, 21M-LGM30G-2-4, 21-LG118A-2-1, 21-LG118A-2-4, 21-LG118A-2-19						
19a	Perform TDR test						
19b	Repair switch assembly						
19b(1)	Personnel access hatch/LSB (LSB Wing 1)						
19b(2)	Launcher closure magnetic switch						
19b(3)	Launcher closure sensitive switch						
19c	Replace transducer						
19d	Rack (6409)						
19d(1)	Replace filter						
19d(2)	Replace capacitor						
19e	Replace transmit filter						
	TR: TOs 21-LGM30G-2-21-X, 21-LG118A-2-21						
19f	Perform system checkout	5					
19g	Troubleshoot system						
19h	Replace CB-1						
20	***REPLACE ELECTRONIC DRAWER***	3					
	TR: TOs 21M-LGM30G-2-12-X, 21M-LGM30G-2-11-X, 21M-LGM30X-2-4-X, 21-LG118A-2-4-1, 21-LG118A-2-11-1						

21	***ELECTRONIC EQUIPMENT TEST STATION (AN/GSM-315), MOBILE WORK SURFACE (MWS) (OQ-364/GSM-315)***						
	TR: TOs 33D9-61-57-21, 33D9-61-91-2						
21a	Operation						
21a(1)	Perform power and wake-up						
21a(2)	Perform operating instructions						
21a(3)	Use test flow diagrams						
21a(4)	Understand functions, theory of operation, and interworking relationship	7					
21b	Maintenance						
21b(1)	Use CHIEF ATS						
21b(2)	Perform inspection and preventive maintenance						
21b(3)	Perform system operational checkout/self-test						
21b(4)	Perform extended test						
21b(5)	Perform instrument built-in tests						
21b(6)	Perform computer subsystem off-line testing						
21c	Troubleshoot						
21c(1)	Station/MWS using test flow diagrams and self-test diagnostics						
21c(2)	Computer subsystem						
21c(3)	Digital subsystem						
21c(4)	AC power distribution						
21c(5)	Programmable power supply 6268B						
21c(6)	Switch controller 9411B						
21c(7)	Synthesizer/function generator 3325A						
21c(8)	Digital magnetic tape unit 7970E						
21c(9)	Line printer unit 2563A						
21c(10)	Video display terminal 45851A						
21c(11)	Disc drive 9123D						
21c(12)	MWS interface panel						
21d	Repair						
21e	Perform alignment and adjustment						
21f	Calibrate						
	TR: TOs 33K3-4-1196-1, 33K3-4-1196-2						
22	***INTERFACE TEST ADAPTER***						
	TR: TOs 33D9-19-80-2, 33D9-61-90-2, 33D9-61-90-3						
22a	Perform inspection and preventive maintenance						
22b	Troubleshoot						
22c	Repair ITA						
22d	Repair ITA PCA						

23	***TEST SETS***						
23a	Common						
23a(1)	C338A test adapter						
	TR: 31S3-2G-1						
23a(1a)	Checkout						
23a(1b)	Troubleshoot						
23a(1c)	Repair						
23a(2)	Connector adapter test set AN/GSM-94						
	TR: TO 31X2-56-8-1						
23a(2a)	Select connectors						
23a(2b)	Repair						
23a(3)	Electronic facility-base maintenance test equipment (AN/GSM-82)						
	TR: TO 33D9-6-21-1						
23a(3a)	Checkout						
23a(3b)	Troubleshoot						
23a(3c)	Repair						
23a(3d)	R/T alarm set test set adapter MX-18317/GSM-82						
23a(3d1)	Checkout						
23a(3d2)	Troubleshoot						
23a(3d3)	Repair						
23b	Weapon system (WS133AM/CDB, WS133B/CDB)						
23b(1)	Computer test set (AN/UYM-3)						
	TR: TOs 31S5-2UYK11-2, 33D9-53-73-1						
23b(1a)	Checkout						
23b(1b)	Troubleshoot						
23b(1c)	Repair						
23b(2)	Memory-controller group test set (AN/GSM-234)						
	TR: TO 33D9-17-79-2						
23b(2a)	Checkout						
23b(2b)	Troubleshoot						
23b(2c)	Repair						
23c	Weapon system WS-133B/CDB						
23c(1)	Power equipment test set (AN/GSM-131)						
	TR: TO 33D9-38-44-1						
23c(1a)	Checkout						
23c(1b)	Troubleshoot						
23c(1c)	Repair						
23c(1d)	Calibrate						

23d	Weapon system WS-118A						
23d(1)	AC/DC converter adapter test set						
	TR: TO 33D9-19-76-1						
23d(1a)	Checkout						
23d(1b)	Troubleshoot						
23d(1c)	Repair						
23d(2)	Battery simulator kit						
	TR: TO 33D9-19-73-1						
23d(2a)	Checkout						
23d(2b)	Troubleshoot						
23d(2c)	Repair						
23d(3)	DC/AC inverter adapter test set						
	TR: TO 33D9-19-74-1						
23d(3a)	Checkout						
23d(3b)	Troubleshoot						
23d(3c)	Repair						
23d(4)	Load bank						
	TR: TO 33DA22-35-1						
23d(4a)	Checkout						
23d(4b)	Troubleshoot						
23d(4c)	Repair						
23d(5)	Memory erase unit						
	TR: TO 31X3-15-8-1						
23d(5a)	Checkout						
23d(5b)	Troubleshoot						
23d(5c)	Repair						
23d(6)	Missile ground power supply adapter test set						
	TR: TO 33D9-19-77-1						
23d(6a)	Checkout						
23d(6b)	Troubleshoot						
23d(6c)	Repair						
23e	Nuclear Certification Test Station (AN/GSM-374)						
	TR: 33D9-54-100-1, 21M-LGM30F-12-1						
23e(1)	Initialize and Certify						
23e(2)	Checkout						
23e(3)	Troubleshoot						
23e(4)	Repair						
23e(5)	Calibrate						
23e(6)	Disk Copy/Partition						

23e(7)	Program/erase SMC-810 Card						
23e(8)	Certify SMC-810 Card						
23e(9)	Certify EMAD Card						
23e(10)	Verify RMB 32 Card						
23e(11)	Certify WSP Drawer						
23e(12)	Decertify WSP Drawer						
23e(13)	Decertify CDA Assemblies						
23e(14)	Decertify CDA/IPD Card						
24	***CODING EQUIPMENT***						
24a	Hardware certification verification equipment						
	TR: TO 31X8-2-3-1						
24a(1)	Perform on-line diagnostics						
24a(2)	Perform off-line diagnostics						
24a(3)	Perform system configuration						
24a(4)	Repair						
24a(5)	Use programmable read-only memory programmer						
24b	Wing code processing system						
	TR: TOs 21-LG118A-12-1, 31X8-2-2-1, 31X8-2-2-2						
24b(1)	Perform common certification operating system						
	procedures						
24b(2)	Troubleshoot						
24b(3)	Repair						
24b(4)	Perform preventive maintenance						
24b(5)	Certify						
24b(6)	Perform power conditioner rated battery test						
24c	Shielded enclosure						
	TR: TO 31X8-2-2-2						
24c(1)	Door seal/fire alarm/communications panel circuitry						
24c(1a)	Checkout						
24c(1b)	Troubleshoot						
24c(1c)	Repair						
24c(2)	Fiber optics						
24c(2a)	Checkout						
24c(2b)	Troubleshoot						
24c(2c)	Repair						
25	***SUPPORT EQUIPMENT***						
25a	Common						
25a(1)	Alarm set test set AN/GSM-319						
	TR: TO 33D9-137-20-1						

25a(1a)	Checkout						
25a(1b)	Troubleshoot						
25a(1c)	Repair						
25a(2)	Checkout cable assembly set, electrical, models SE214A, SE536A1 (AN/GJA28A) (ANGJQ-33) (ON-146/G)						
	TR: TO 31S3-2G-1						
25a(3)	Connector adapter set (AN/GSM-85)						
	TR: TO 31X2-56-8-1						
25a(3a)	Perform continuity checks						
25a(3b)	Troubleshoot						
25a(3c)	Repair						
25a(4)	Electrical cable assembly set (A/E 24A-148A) (A/E 24T-52) (A/E 24T-176) electrical lead assembly (HRK-465/E25T-1)						
	TR: TOs 33D9-38-15-1, 33D9-38-15-21						
25a(4a)	Checkout						
25a(4b)	Troubleshoot						
25a(4c)	Repair						
25a(5)	Electrical power test set (AN/GJM-42) (AN/GJM-26) (AN/GJM-52) (AN/GJM-53)						
	TR: TO 33D9-6-93-1						
25a(5a)	Checkout						
25a(5b)	Troubleshoot						
25a(5c)	Repair						
25a(6)	Explosive set circuitry test set (TTU 463/E)						
	TR: TO 33D9-38-15-21						
25a(6a)	Perform self-test						
25a(6b)	Troubleshoot						
25a(6c)	Repair						
25a(7)	Guidance section liquid cooler test set(TTU-367A/E)						
	TR: TO 33D9-17-81-2						
25a(7a)	Checkout						
25a(7b)	Troubleshoot						
25a(7c)	Repair						
25a(7d)	Adjust						
25a(8)	Perform waveform checkout of guidance set cooler test bench (A/E-47T-23)						
	TR: TO 33D9-17-89-1						
25a(9)	Magnetic tape degausser (TD 2903-4B)(MX-10387/T)						
	TR: TO 31S3-4-52-11; MX-10387/T Commercial Manual						
25a(9a)	Inspect						
25a(9b)	Repair						

25a(10)	Magnetic tape transport (C631A)						
	TR: TO 33DA30-23-1						
25a(10a)	Perform self-test						
25a(10b)	Troubleshoot						
25a(10c)	Repair						
25a(11)	Minuteman power processor verification box/power system verification box						
	TR: CEM 21-SM80-2-22						
25a(11a)	Checkout						
25a(11b)	Troubleshoot						
25a(11c)	Repair						
25a(12)	RFI filter unit						
	TR: TO 21M-LGM30F-12						
25a(12a)	Checkout						
25a(12b)	Troubleshoot						
25a(12c)	Repair						
25a(13)	Tape transport (RP-131/G)						
	TR: TO 31S3-2G-1						
25a(13a)	Checkout						
25a(13b)	Troubleshoot						
25a(13c)	Repair						
25a(14)	Temperature Control Test Set (Tronac Model 200)						
	TR: TO 33D9-17-82-1						
25a(14a)	Checkout						
25a(14b)	Troubleshoot						
25a(14c)	Repair						
25a(14d)	Calibrate						
25a(15)	Controller Monitor (YG 9638A2)						
	TR: TOs 33D9-61-57-21, 33D9-111-35-2						
25a(15a)	Checkout						
25a(15b)	Troubleshoot						
25a(15c)	Repair						
25a(16)	Code change verifier (KY-930/AJQ-21/SM-876/G)						
	TR: TO 31X2-24-31-2						
25a(16a)	Self Test						
25a(16b)	Troubleshoot						
25a(16c)	Repair						
25a(16d)	Certify						

25a(17)	Code change verifier test set						
	TR: TO 33D9-107-13-2						
25a(17a)	Certify Program Memory Comparitor						
25a(17b)	Checkout						
25a(17c)	Troubleshoot						
25a(17d)	Repair						
25b	Weapon system WS-133AM/CDB, WS-133B/CDB, WS-118 Electronic data processing tape recorder reproducer (RD-368/G)						
	TR: TO 33D9-104-31-2						
25b(1)	Checkout						
25b(2)	Troubleshoot						
25b(3)	Repair						
25c	Weapon system WS-133AM/CDB, WS 118 Fault locating indicator (ID-2288/GSW)						
	TR: TO 33D9-29-14-1						
25c(1)	Checkout						
25c(2)	Troubleshoot						
25c(3)	Repair						
25d	Weapon system WS-133B/CDB						
25d(1)	Electrical power test set (AN/GSM-121)						
	TR: TO 33D9-6-98-1						
25d(1a)	Perform continuity checks						
25d(1b)	Repair						
25e	Weapon System WS 118						
25e(1)	Battery isolator kit						
	TR: TO 33D9-19-73-1						
25e(1a)	Perform continuity checks						
25e(1b)	Repair						
25e(2)	Cable connector adapter sets						
	TR: TO 33D9-19-73-1, 33D9-19-78-1						
25e(2a)	Perform continuity checks						
25e(2b)	Repair						
25e(3)	Distribution box adapter test set						
	TR: TO 33D9-19-75-1						
25e(3a)	Checkout						
25e(3b)	Troubleshoot						
25e(3c)	Repair						

25e(4)	Perform transducer adjustment of guidance control conditioning unit test bench						
	TR: TO 33D9-3-265-1						
25e(5)	Launch control system controller memory management certification set						
	TR: TOs 21-LG118A-12-1, 31X3-10-76-1						
25e(5a)	Perform self-test/verification						
25e(5b)	Checkout						
25e(5c)	Troubleshoot						
25e(5d)	Repair						
25e(5e)	Certify						
25e(6)	Loader control monitor unit						
	TR: TOs 21-LG118A-12-1, 31X3-12-14-1, 33D9-61-87-1						
25e(6a)	Perform self-test						
25e(6b)	Checkout						
25e(6c)	Troubleshoot						
25e(6d)	Repair						
25e(6e)	Certify						
25e(7)	Missile guidance control set certification set (C772A)						
	TR: TOs 21-LG118A-12-1, 33D9-54-73-2						
25e(7a)	Perform self-test						
25e(7b)	Troubleshoot						
25e(7c)	Repair						
25e(7d)	Certify						
25e(8)	Keyboard-printer/recorder-reproducer test adapter (TS-325/GSM-127B)						
	TR: TO 33D9-6-21-1						
25e(8a)	Checkout						
25e(8b)	Troubleshoot						
25e(8c)	Repair						
25e(9)	Coder decoder indicator test adaptor (TS-3250/GSM-127B)						
	TR: TO 33D9-6-21-1						
25e(9a)	Checkout						
25e(9b)	Troubleshoot						
25e(9c)	Repair						
26	***OPERATIONAL GROUND EQUIPMENT (OGE)***						
26a	Common						
26a(1)	Guidance section liquid cooler electronic control amplifier URDs 6402A1, 413A1						
	TR: TO 35E9-35-22						

26a(1a)	Checkout						
26a(1b)	Troubleshoot						
26a(1c)	Repair						
26a(2)	Inertial performance data collection system terminal processor group URDs 311A5, 6218A5						
	TR: TO 33D9-61-51-1						
26a(2a)	Install SDU						
26a(2b)	Remove SDU						
26a(3)	Minuteman power processor						
	TR: CEM 21-SM80-2-22						
26a(3a)	Checkout						
26a(3b)	Troubleshoot						
26a(3c)	Repair						
26a(4)	Receiver-transmitter alarm set (RT-1533/FSQ-149)						
	TR: TO 31X3-31-9-2						
26a(4a)	Checkout						
26a(4b)	Troubleshoot						
26a(4c)	Repair						
26a(4d)	Checkout motion pickup transducer						
26a(4e)	Certify						
26a(5)	Power supply (PP-3030/GSW-4, PP-3027/GSW-4, PP-3026/GSW-4)						
	TR: TOs 33D9-61-57-21, 35C2-2-63-1						
26a(5a)	Checkout						
26a(5b)	Troubleshoot						
26a(5c)	Repair						
26a(5d)	Calibrate						
26a(6)	Portable IPD terminal						
	TR: TO 33D9-74-42-2						
26a(6a)	Checkout						
26a(6b)	Troubleshoot						
26a(6c)	Repair						
26a(7)	Communication Equipment Interface Unit (CEIU)						
	TR: TO 33D9-74-42-2						
26a(7a)	Checkout						
26a(7b)	Troubleshoot						
26a(7c)	Repair						
26a(8)	Strap/adjust electronic drawers						
	TR: TOs 31R2-2GRC128-2, 31S8-2GSW6-2, 33D9-61-58-2						
26b	Weapon system WS-133AM/CDB, WS-133B/CDB, WS-118 Common MAF equipment						

26b(1)	Coder decoder indicator (KY-758/GYW-1) URD 16231A1						
	TR: TOs 31S8-2GYW1-22, 33D9-61-57-21						
26b(1a)	Checkout						
26b(1b)	Troubleshoot						
26b(1c)	Repair						
26b(2)	Computer processor verifier (CP-1109) URD 16231A4						
	TR: TO 31S5-2UYK11-2						
26b(2a)	Checkout						
26b(2b)	Troubleshoot						
26b(2c)	Repair						
26b(3)	Controller-synchronizer (C-8984/GYW-1) URD 16231A2						
	TR: TO 31S8-2GYW1-12						
26b(3a)	Checkout						
26b(3b)	Troubleshoot						
26b(3c)	Repair						
26b(4)	Magnetic drum memory unit (MU-580/GYW-1) URD 16231A3						
	TR: TO 31S8-2GYW1-12						
26b(4a)	Checkout						
26b(4b)	Troubleshoot						
26b(4c)	Repair						
26b(4d)	Perform drum erase and clock track write procedures						
26b(5)	Plated wire memory unit (MU-582) URD 16231A6						
	TR: TO 31S5-2UYK11-2						
26b(5a)	Checkout						
26b(5b)	Troubleshoot						
26b(5c)	Repair						
26b(6)	Keyboard printer						
	TR: TOs 31S8-4-9-2, 33D9-61-57-21, 33D9-61-57-21-2						
26b(6a)	Checkout						
26b(6b)	Troubleshoot						
26b(6c)	Repair						
26c	Weapon System WS-133AM/CDB						
26c(1)	Control monitor (C-9212A/GSW-13, C-10153A/GSW-13) URD 403A6						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26c(1a)	Checkout						
26c(1b)	Troubleshoot						
26c(1c)	Repair						
26c(1d)	Certify						

26c(2)	Electronic equipment drawer (MX-9334/GSW-13) URD 403A1						
	TR: TO 31X3-12-13-2						
26c(2a)	Perform continuity checks						
26c(2b)	Repair						
26c(2c)	Reset/purge command signal decoder/ground (KY-412/GYK-2)						
26c(3)	Guidance and control coupler unit (CU-2063/G) URD 403A5						
	TR: TOs 31R3-4-24-2, 33D9-61-57-21						
26c(3a)	Checkout						
26c(3b)	Troubleshoot						
26c(3c)	Repair						
26c(3d)	Certify						
26c(4)	Message processing control (C-9043) URD 10364A6						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26c(4a)	Checkout						
26c(4b)	Troubleshoot						
26c(4c)	Repair						
26c(5)	Message processor (C-9211A/GSW-13) URD 403A4						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26c(5a)	Checkout						
26c(5b)	Troubleshoot						
26c(5c)	Repair						
26c(5d)	Certify						
26c(6)	Power supply (PP-6879/GSW-13) URD 403A7						
	TR: TO 31X3-12-13-2						
26c(6a)	Checkout						
26c(6b)	Troubleshoot						
26c(6c)	Repair						
26d	Weapon system WS-133AM/CDB, WS 118A						
26d(1)	Alarm monitor panel (SB-1382/GSW-4, SB-2435/GSW-10, 25-43743) URD 300A1A9						
	TR: TO 31X3-3-9-2-1						
26d(1a)	Checkout						
26d(1b)	Troubleshoot						
26d(1c)	Repair						
26d(2)	Audible alarm assembly (BZ-71/GSW-4) URD 300A2A2						
	TR: TO 31X3-3-9-2-1						
26d(2a)	Troubleshoot						
26d(2b)	Repair						

26d(3)	Audio frequency amplifier (AM-3159) URD 303A4						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(3a)	Checkout						
26d(3b)	Troubleshoot						
26d(3c)	Repair						
26d(4)	Audio frequency detector (DT-252/GYK-2) URD 401A1, 403A2:						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(4a)	Checkout						
26d(4b)	Troubleshoot						
26d(4c)	Repair						
26d(5)	Digital data memory unit (MU-512) URDs 304A2, 10364A2						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(5a)	Checkout						
26d(5b)	Troubleshoot						
26d(5c)	Repair						
26d(6)	Digital data receiver (R-1096, R-1096A) URD 303A2, A3						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(6a)	Checkout						
26d(6b)	Troubleshoot						
26d(6c)	Repair						
26d(7)	Digital data receiver (R-1131) URD 303A7						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(7a)	Checkout						
26d(7b)	Troubleshoot						
26d(7c)	Repair						
26d(8)	Digital data receiver-transmitter (RT-646/GYK-2) URD 401A2, 403A3						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(8a)	Checkout						
26d(8b)	Troubleshoot						
26d(8c)	Repair						
26d(9)	Digital data transmitter (T-869) URD 303A1						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(9a)	Checkout						
26d(9b)	Troubleshoot						
26d(9c)	Repair						
26d(10)	Direct current power filter assembly (F-639/GSW-4) URD 300A1A8						
	TR: TO 31X3-3-9-2-1						

26d(10a)	Checkout						
26d(10b)	Troubleshoot						
26d(10c)	Repair						
26d(11)	Launch verification panel (SB-2434A, SB-3651/GSW-13) URD 305A4, 10364A4						
	TR: TO 31X2-32-3-2						
26d(11a)	Checkout						
26d(11b)	Troubleshoot						
26d(11c)	Repair						
26d(12)	Missile away indicator (ID-979) URD 303A6						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(12a)	Checkout						
26d(12b)	Troubleshoot						
26d(12c)	Repair						
26d(13)	Power supply (PP-4359/GSW-10) URD 305A7, 10364A7						
	TR: TO 31X2-32-3-2						
26d(13a)	Checkout						
26d(13b)	Troubleshoot						
26d(13c)	Repair						
26d(14)	Signal data recorder URD 305A5, (RO-277B/GSW-10) URD 10364A5						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(14a)	Checkout						
26d(14b)	Troubleshoot						
26d(14c)	Repair						
26d(15)	Station alert ringing unit (MX-3681, MX-3682, MX-3683, MX-3684, MX-3685) URD 303A5						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26d(15a)	Checkout						
26d(15b)	Troubleshoot						
26d(15c)	Repair						
26d(16)	UHF radio receiver (R-1358A/B/GSW-10) URD 1475A1, 1475A4						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2, 31X2-19-3-2						
26d(16a)	Checkout						
26d(16b)	Troubleshoot						
26d(16c)	Repair						
26d(16d)	Adjust						
26d(16e)	Change frequency/address						
26d(17)	Voltage dividing network (MX-6921) URD 304A1, 10364A1						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						

26d(17a)	Checkout						
26d(17b)	Troubleshoot						
26d(17c)	Repair						
26d(18)	Audio Frequency Detector- Repeater (DT-312/GYK-2, URD 403A2)						
	TR: TO 33D9-61-57-21, 33D9-61-58-2						
26d(18a)	Checkout						
26d(18b)	Troubleshoot						
26d(18c)	Repair						
26e	Weapon system WS-133AM/CDB, WS-118A						
26e(1)	Digital to digital converter (CV-2952, CV3970) URD 10364A3						
	TR: TOs 33D9-61-57-21, 33D9-61-58-2						
26e(1a)	Checkout						
26e(1b)	Troubleshoot						
26e(1c)	Repair						
26f	Weapon system WS-133B/CDB						
26f(1)	Amplifier converter (AM-4624/GSW-11) URD 6406A6						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(1a)	Checkout						
26f(1b)	Troubleshoot						
26f(1c)	Repair						
26f(2)	Amplifier-oscillator (AM-4000/GSW-5) URD 6207A12						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(2a)	Checkout						
26f(2b)	Troubleshoot						
26f(2c)	Repair						
26f(3)	Analog to digital converter (CV-1709/GSW-6, CV-1710/GSW-6) URD 6210A3, 6210A4						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(3a)	Checkout						
26f(3b)	Troubleshoot						
26f(3c)	Repair						
26f(4)	Battery charger (PP-4068/GSA-67) URD 6258A1						
	TR: TO 31S1-2GSA66-2						
26f(4a)	Checkout						
26f(4b)	Troubleshoot						
26f(4c)	Repair						
26f(5)	Battery charger (PP-4069/GSA-76) URD 6255A3						
	TR: TO 31S1-2GSA66-2						
26f(5a)	Checkout						

26f(5b)	Troubleshoot						
26f(5c)	Repair						
26f(6)	Code register launch enable control group (MX-9540/GSW-5) URD 6203A12						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(6a)	Checkout						
26f(6b)	Troubleshoot						
26f(6c)	Repair						
26f(7)	Code transmitter (KY-539/GSW-5) URD 6203A11						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(7a)	Checkout						
26f(7b)	Troubleshoot						
26f(7c)	Repair						
26f(8)	Communications control panel (SB-2326/GSW-5) URD 6207A7						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(8a)	Checkout						
26f(8b)	Troubleshoot						
26f(8c)	Repair						
26f(9)	Computer control (C-9559/GSW-11) URD 6406A4						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(9a)	Checkout						
26f(9b)	Troubleshoot						
26f(9c)	Repair						
26f(9d)	Certify						
26f(10)	Control indicator (C-6132/GSW-5) URD 6203A4						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(10a)	Checkout						
26f(10b)	Troubleshoot						
26f(10c)	Repair						
26f(11)	Control test panel/Battery charger group AN/GSM-76						
	TR: TO 31S1-2GSA66-2						
26f(11a)	Checkout						
26f(11b)	Troubleshoot						
26f(11c)	Repair						
26f(12)	Digital data converter-programmer (CV-1708/GSW-5) URD 6207A10						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(12a)	Checkout						
26f(12b)	Troubleshoot						
26f(12c)	Repair						

26f(13)	Electrical equipment drawer (J-4670/GSW-5) URD 6207A13						
	TR: TO 31S8-2GSW5-2-1						
26f(13a)	Perform continuity checks						
26f(13b)	Repair						
26f(14)	Electrical synchronizer (SN-366/GSW-6) URD 6210A2						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(14a)	Checkout						
26f(14b)	Troubleshoot						
26f(14c)	Repair						
26f(15)	Fault isolator (TS-2060/GSQ-83) URD 6208A3						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(15a)	Checkout						
26f(15b)	Troubleshoot						
26f(15c)	Repair						
26f(16)	Fault monitor (ID-1201/GSQ-83) URD 6208A2						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(16a)	Checkout						
26f(16b)	Troubleshoot						
26f(16c)	Repair						
26f(17)	Filter monitor (F-895/FSQ-50) URD 6521A2						
	TR: TO 35C3-2-45-1						
26f(17a)	Checkout						
26f(17b)	Troubleshoot						
26f(17c)	Repair						
26f(18)	Indicator panel (ID-1973/GSW-5) URD 6207A3						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(18a)	Checkout						
26f(18b)	Troubleshoot						
26f(18c)	Repair						
26f(19)	Indicator panel (SB-2226/GSW-5) URD 6207A2, 6207A4						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(19a)	Checkout						
26f(19b)	Troubleshoot						
26f(19c)	Repair						
26f(20)	Indicator panel (SB-3768/GSW-5) URD 6207A6						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(20a)	Checkout						
26f(20b)	Troubleshoot						
26f(20c)	Repair						

26f(21)	Interconnecting box (J-2230/GRC-131) URD 6218A1						
	TR: TOs 31R2-2GRC128-2, 33D9-61-57-21						
26f(21a)	Checkout						
26f(21b)	Troubleshoot						
26f(21c)	Repair						
26f(22)	Interconnecting box (J-2231/GSW-7) URD 6406A1						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(22a)	Checkout						
26f(22b)	Troubleshoot						
26f(22c)	Repair						
26f(23)	Launch control console panel (C-6131/GSW-5) URD 6203A2						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(23a)	Checkout						
26f(23b)	Troubleshoot						
26f(23c)	Repair						
26f(24)	Launch control panel (SB-2229/GSW-5, SB-2327/GSW-5) URD 6203A10, 6207A9						
	TR: TO 31S8-2GSW5-2-1						
26f(24a)	Inspect						
26f(24b)	Reset						
26f(25)	Message monitor panel (ID-1683/GSW-5) URD 6203A3						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(25a)	Checkout						
26f(25b)	Troubleshoot						
26f(25c)	Repair						
26f(26)	Missile away detector indicator (DT-286/GSW-6) URD 6210A6						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(26a)	Checkout						
26f(26b)	Troubleshoot						
26f(26c)	Repair						
26f(27)	Power distribution panel (SB-2301/GSA-66) URD 6214A1						
	TR: TO 31S1-2GSA66-2						
26f(27a)	Perform continuity checks						
26f(27b)	Repair						
26f(28)	Power distribution panel (SB-2302/GSA-67) URD 6258A1						
	TR: TOs 31S1-2GSA66-2, 33D9-61-57-21						
26f(28a)	Checkout						
26f(28b)	Troubleshoot						
26f(28c)	Repair						

26f(29)	Power distribution panel (SB-2303/GSA-66) URD 6214A2						
	TR: TO 31S1-2GSA66-2						
26f(29a)	Perform continuity checks						
26f(29b)	Repair						
26f(30)	Power distribution panel (SB-2304/GSA-66) URD 6214A3						
	TR: TO 31S1-2GSA66-2						
26f(30a)	Perform continuity checks						
26f(30b)	Repair						
26f(31)	Power distribution panel (SB-2305/GSA-66) URD 6214A4						
	TR: TO 31S1-2GSA66-2						
26f(31a)	Perform continuity checks						
26f(31b)	Repair						
26f(32)	Power distribution panel (SB-2306/GSA-66) URD 6214A5						
	TR: TO 31S1-2GSA66-2						
26f(32a)	Perform continuity checks						
26f(32b)	Repair						
26f(33)	Power supply, digital data terminal (PP-7037/GSW-13) URD 6406A7						
	TR: TO 35C1-2-477-1						
26f(33a)	Checkout						
26f(33b)	Troubleshoot						
26f(33c)	Repair						
26f(34)	Power supply (PP-3927/FSQ-50) URD 6521A3-5						
	TR: TO 35C3-2-45-1						
26f(34a)	Checkout						
26f(34b)	Troubleshoot						
26f(34c)	Repair						
26f(35)	Power supply (PP-4014/GS) URD 6208A1, 6209A1, 6210A1						
	TR: TOs 31S8-2GSW5-2-1, 31S8-2GSW6-2, 33D9-61-57-21						
26f(35a)	Checkout						
26f(35b)	Troubleshoot						
26f(35c)	Repair						
26f(36)	Power supply (PP-4155/GRC-128) URD 6218A2						
	TR: TOs 31R2-2GRC128-2, 33D9-61-57-21						
26f(36a)	Checkout						
26f(36b)	Troubleshoot						
26f(36c)	Repair						
26f(37)	Power supply (PP-4016/GSW5) URD6203A13/6207A11						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						

26f(37a)	Checkout						
26f(37b)	Troubleshoot						
26f(37c)	Repair						
26f(38)	Radio frequency amplifier (AM-7739/GRC-225) URD 6224A5, 6407A5						
	TR: TOs 31R2-2GRC128-2, 33D9-61-57-21						
26f(38a)	Checkout						
26f(38b)	Troubleshoot						
26f(38c)	Repair						
26f(39)	Radio receiver transmitter (RT-1536/GRC-225) URD 6224A4, 6407A4						
	TR: TOs 31R2-2GRC128-2, 33D9-61-57-21						
26f(39a)	Checkout						
26f(39b)	Troubleshoot						
26f(39c)	Repair						
26f(40)	Radio signal distribution panel (SB-3764/GSW-5) URD 6203A6						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21						
26f(40a)	Checkout						
26f(40b)	Troubleshoot						
26f(40c)	Repair						
26f(41)	Signal data converter (CV-3269/G) URD 6406A5						
	TR: TOs 31R3-4-25-2, 33D9-61-57-21						
26f(41a)	Checkout						
26f(41b)	Troubleshoot						
26f(41c)	Repair						
26f(41d)	Certify						
26f(42)	Signal data recorder URD 6207A5						
	TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21-2						
26f(42a)	Checkout						
26f(42b)	Troubleshoot						
26f(42c)	Repair						
26f(43)	Status signal receiver (R-1246/GSW-6) URD 6210A5						
	TR: TOs 31S8-2GSW6-2, 33D9-61-57-21						
26f(43a)	Checkout						
26f(43b)	Troubleshoot						
26f(43c)	Repair						
26f(44)	UHF radio receiver (R-1389/GRA-80) URD 6408A7						
	TR: TOs 31R2-2GRC128-2, 33D9-61-57-21						
26f(44a)	Checkout						
26f(44b)	Troubleshoot						

26f(44c)	Repair						
26f(44d)	Adjust						
26f(44e)	Change frequency/address						
26g	Weapon system WS-118A						
26g(1)	AC/DC converter						
	TR: TO 31X3-13-32-1						
26g(1a)	Control drawer URD 475A5						
26g(1a1)	Checkout						
26g(1a2)	Troubleshoot						
26g(1a3)	Repair						
26g(1b)	Power chassis URD 475A6/A7						
26g(1b1)	Checkout						
26g(1b2)	Troubleshoot						
26g(1b3)	Repair						
26g(2)	Control monitor URD 403A6						
	TR: TOs 21-LG118A-12-1, 31X3-16-14-1, 33D9-61-87-1						
26g(2a)	Checkout						
26g(2b)	Troubleshoot						
26g(2c)	Repair						
26g(2d)	Certify						
26g(3)	DC/AC inverter URD 406A5, A6, A7						
	TR: TO 31X3-13-35-1						
26g(3a)	Waveform generator (drawer 1)						
26g(3a1)	Checkout						
26g(3a2)	Troubleshoot						
26g(3a3)	Repair						
26g(3b)	Single-phase inverter (drawers 2 and 3)						
26g(3b1)	Checkout						
26g(3b2)	Troubleshoot						
26g(3b3)	Repair						
26g(4)	Launch control system controller URD 1475A6						
	TR: TOs 21-LG118A-12-1, 31X3-10-74-1, 33D9-61-87-1						
26g(4a)	Checkout						
26g(4b)	Troubleshoot						
26g(4c)	Repair						
26g(4d)	Certify						
26g(4e)	Erase core memory modules						
26g(5)	Message processor URD 403A4						
	TR: TOs 21-LG118A-12-1, 31X3-16-14-1, 33D9-61-87-1						

26g(5a)	Checkout						
26g(5b)	Troubleshoot						
26g(5c)	Repair						
26g(5d)	Certify						
26g(6)	Missile ground power supply URD 406A3, A4						
	TR: TO 31X3-13-31-1						
26g(6a)	Drawer 1						
26g(6a1)	Checkout						
26g(6a2)	Troubleshoot						
26g(6a3)	Repair						
26g(6b)	Drawer 2						
26g(6b1)	Checkout						
26g(6b2)	Troubleshoot						
26g(6b3)	Repair						
26g(7)	Power supply URD 403A7						
	TR: TOs 31X3-16-14-1, 33D9-61-87-1						
26g(7a)	Checkout						
26g(7b)	Troubleshoot						
26g(7c)	Repair						
26g(8)	UHF transmitter URD 1475A5						
	TR: TOs 31X1-2-1-301, 33D9-61-87-1						
26g(8a)	Checkout						
26g(8b)	Troubleshoot						
26g(8c)	Repair						
26g(9)	Certify secure code device						
	TR: TOs 21M-LGM30F-12-1, 33D9-61-57-1						
27	**MISCELLANEOUS ELECTRICAL EQUIPMENT**						
27a	Electrical cables, harnesses and wire assemblies						
	TR: TO 31X4-1-152						
27a(1)	Perform continuity checks						
27a(2)	Repair						
27b	Electrical equipment cabinet (CY-7201/GYW-1(v))						
	TR: TO 31S8-2GYW1-2						
27b(1)	Perform continuity checks						
27b(2)	Repair						
27c	Power signal distribution units, distribution boxes, electrical surge arresters and cable assemblies						
	TR: TO 31X4-1-102						
27c(1)	Checkout						

27c(2)	Troubleshoot						
27c(3)	Repair						
27d	Relay assemblies, power-signal distribution unit						
	TR: TO 31X3-6-9-1						
27d(1)	Checkout						
27d(2)	Troubleshoot						
27d(3)	Repair						
27e	Wire assemblies and electrical surge arresters						
	TR: TO 31X4-1-142						
27e(1)	Perform continuity checks						
27e(2)	Repair						
27f	Distribution box assemblies						
	TR: TO 35M1-1-101						
27f(1)	Checkout						
27f(2)	Troubleshoot						
27f(3)	Repair						
28	***AEROSPACE VEHICULAR EQUIPMENT***						
28a	Missile Guidance Set (NS20)						
	TR: TO 21M-LGM30G-2-33						
28a(1)	Receive from special repair area						
28a(2)	Install components						
28a(3)	Prepare shipping container for MGS receipt						
28a(4)	Remove components						
28a(5)	Prepare for transport to special repair area						
28a(6)	Repair						
28a(7)	Repair MGS shipping container						
28b	Squib actuated battery						
	TR: TO 11A15-1-167-1						
28b(1)	Checkout						
28b(2)	Inspect						
28c	Missile Guidance Set (NS-50)						
	TR: 21M-LGM30G-2-33 and 21M-LGM30F-12-1						
28c(1)	Receive from special repair area						
28c(2)	Install components						
28c(3)	Prepare shipping container for MGS receipt						
28c(4)	Remove components						
28c(5)	Prepare for transport to special repair area						
28c(6)	Repair						
28c(7)	Repair MGS shipping container						

28c(8)	Certify						
28d	Missile Guidance Set Test Set (MGSTS)						
	TR: 33D9-3-284-1 and 21M-LGM30F-12-1						
28d(1)	Operate						
28d(2)	Checkout						
28d(3)	Troubleshoot						
28d(4)	Repair						
28e	Squib Actuated Battery						
	TR: 21M-LGM30G-2-33						
28e(1)	Battery/EMI Cover Inspect						
28e(2)	EMI Cover and Strap Assembly						
28e(2a)	Install						
28e(2b)	Remove						
28e(3)	Battery Assembly Checkout						
28f	Checkout reentry system simulator						
	TR: TO 33D9-61-57-21-2						
29	***VANDENBERG ONLY***						
29a	Relay Assembly (LEPS Drawer) P/N 25-41855-30/32						
	TR: TO 31X3-13-1-102						
29a(1)	Checkout						
29a(2)	Troubleshoot						
29a(3)	Repair						
29b	Missile Systems Components Test Set (3 in1) AN/GSM-349						
	TR: TO 33D9-9-8-2						
29b(1)	Checkout						
29b(2)	Troubleshoot						
29b(3)	Repair						
29b(4)	Calibrate						
29c	Command Signal Decoder Simulator P/N 83244550-501 SM-315/GYK-2: Checkout						
	TR: TO 33D9-88-6-1						
29d	Stage Test P/N 863G1400000-019						
	TR: TO 33D9-89-23-1						
29d(1)	Checkout						
29d(2)	Troubleshoot						
29d(3)	Repair						
29e	Low Voltage Continuity Test Set (LVCTS)						
	TR: TO 33D9-89-24-1						
29e(1)	Checkout						

29e(2)	Troubleshoot						
29e(3)	Repair						
29e(4)	Calibration						
29f	Low Voltage Continuity Test Set (LVCTS) test tube						
	TR: TO 33D9-89-24-1						
29f(1)	Checkout						
29f(2)	Troubleshoot						
29f(3)	Repair						
29g	Electrical Checkout Test Set (ECTS)						
	TR: TO 33D9-54-68-2						
29g(1)	Checkout						
29g(2)	Troubleshoot						
29g(3)	Repair						
29g(4)	Calibrate						
29h	Guided Missile Launcher Electrical Circuit (GMLEC) Test Set						
	TR: TO 33D9-14-82-2						
29h(1)	Self Test						
29h(2)	Troubleshoot						
29h(3)	Calibrate						
29h(4)	Software maintenance						
29h(5)	Repair						
29i	Circuit Card Repair (Hunton Tracker)						
	TR: TO 00-25-234, User's Manual						
29i(1)	Checkout						
29i(2)	Troubleshoot						
29i(3)	Repair						

ATTACHMENT 3
AFSC 2M051/2M071 STS
SPACELIFT ELECTRONIC MAINTENANCE TASKS

		CORE	START	COMP	TRAINEE	TRAINER	CERTIFYING
TASK #	**TASK / KNOWLEDGE ITEM**	**TASK**	**DATE**	**DATE**	**INITIALS**	**INITIALS**	**INITIALS**
1	***MAINTENANCE CONTROLLER COMMON TASKS***						
	TR: AFSPCI 21-0108, EWR 127-1, Local directives and operating instructions						
1a	Support						
1a(1)	Program/readiness reviews						
1a(2)	Problem resolutions/troubleshooting						
1b	Perform						
1b(1)	Post launch actions						
1b(2)	Launch day activities						
1b(3)	Walk-down procedures						
1b(4)	Disaster recovery operations						
1b(5)	Data reviews/procedure closeout						
1c	Ensure compliance with						
1c(1)	Procedures						
1c(2)	Configuration control						
1c(3)	Emergency procedures						
1c(4)	Local safety procedures						
1c(5)	Local security requirements						
1c(6)	Environmental requirements						
1d	Conduct briefing/debriefing						
1e	Review/approve procedures						
1f	Operate communication systems						
2	***UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING ATLAS SUBSYSTEMS***						
	TR: Procedures and training materials						
2a	Avionics						
2a(1)	Ordnance						
2a(2)	Flight Control						
2a(3)	Instrumentation						
2a(4)	Flight Tracking						
2a(5)	Flight Termination						
2a(6)	Airborne Electrical						
2a(7)	Reaction Control System (RCS) Interface						
2a(8)	Computer Controlled Atlas Pressurization System						
2a(9)	Computer Controlled Vent and Pressurization System						
2b	Electrical Age						
2b(1)	RF Test and Measurement						

ATTACHMENT 3
AFSC 2M051/2M071 STS
SPACELIFT ELECTRONIC MAINTENANCE TASKS

		CORE	START	COMP	TRAINEE	TRAINER	CERTIFYING
TASK #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
2b(2)	Hardware Extension Remote						
2b(3)	Computer Controlled Launch Set						
2b(4)	Launch Site Communications Lines						
2b(5)	Automated Data Monitoring System (ADMS)						
2b(6)	Remote Aerospace Ground Equipment						
2c	Payload Fairings /Adapters						
3	***UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING DELTA SUBSYSTEMS***						
	TR: Procedures and training materials						
3a	Payload fairings/adapters						
3b	Monitor, evaluate and report on						
3b(1)	Payload attach fitting						
3b(2)	Composite electrical checks						
3c	Avionics (First, Second, Third Stage)						
3c(1)	Electrical						
3c(2)	Ordnance						
3c(3)	Telemetry						
3c(4)	Flight Control						
3c(5)	Flight Tracking						
3c(6)	Nutation Control						
3c(7)	Flight Termination						
3d	Advanced Launch Control System (ALCS)						
3e	Monitor, evaluate and report on the following pad electrical procedures						
3e(1)	Pre-test Preparations						
3e(2)	Simulated Flight Test						
3e(3)	Flight Program Verification						
3e(4)	Guidance Control Beacon Checks						
3e(5)	First and Second Electrical Age Quals						
3e(6)	Vehicle Giudance and Control Checks						
3e(7)	Vehicle Electro-Mechanical Qualifications						
3f	Monitor, evaluate and report on the following Delta Mission Checkout (DMCO) procedures						
3f(1)	RIFCA Qualifications						
3f(2)	Dual Composite Test						
3f(3)	Simulated Flight-DMCO						
3f(4)	Flight Battery Preparation						
3f(5)	First Stage Control System Checkout						

ATTACHMENT 3
AFSC 2M051/2M071 STS
SPACELIFT ELECTRONIC MAINTENANCE TASKS

		CORE	START	COMP	TRAINEE	TRAINER	CERTIFYING
TASK #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
3f(6)	Individual Acceptance Test of the CRD						
3f(7)	First Stage Electrical System Validation						
3f(8)	First Stage Telemetry System Checkout						
3f(9)	Second Stage Control System Checkout						
3f(10)	First Stage Rate Gyro Stand Alone Functional Test						
4	***UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING TITAN SUBSYSTEMS***						
	TR: Procedures and training materials						
4a	Ordnance system						
4b	Centaur (Upper Stage)						
4b(1)	Electrical						
4b(2)	Flight safey						
4b(3)	Instrumentation						
4b(4)	Guidance and navigation						
4b(5)	Computer controlled launch set						
4c	Avionics (Core vehicle)						
4c(1)	Electrical						
4c(2)	Instrumentation						
4c(3)	Guidance and navigation						
4c(4)	Tracking and flight safety						
4d	Inertial Upper Stage (IUS)						
4d(1)	Electrical						
4d(2)	Flight safety						
4d(3)	Instrumentation						
4d(4)	Guidance and navigation						
4d(5)	Shuttle transport system Airborne Support Equipment (ASE)						
4e	Solid Rocket Motor (SRM)						
4e(1)	Electrical						
4e(2)	Flight safety						
4e(3)	Flight controls						
4e(4)	Instrumentation						
4f	Ground Support Equipment (GSE)						
4f(1)	Ground Power						
4f(2)	Launch control and monitor system						
4f(3)	Guidance, control and monitor group (GCMG)						
4f(4)	Programmable aerospace ground equipment (PAGE)						
4f(5)	Programmable aerospace computer equipment (PACE)						

ATTACHMENT 3
AFSC 2M051/2M071 STS
SPACELIFT ELECTRONIC MAINTENANCE TASKS

		CORE	START	COMP	TRAINEE	TRAINER	CERTIFYING
TASK #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
4g	Solid Rocket Motor Upgrade (SRMU)						
4g(1)	Electrical						
4g(2)	Flight safety						
4g(3)	Flight controls						
4g(4)	Instrumentation						
5	***UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING SPACECRAFT SUBSYSTEMS***						
	TR: Procedures and training materials						
5a	Sensors						
5b	Ordnance						
5c	Electrical						
5d	Telemetry						
5e	Solar array						
5f	Thermal control						
5g	Flight termination						
5h	Guidance and navigation						

ATTACHMENT 4
AFSC 2M051/2M071 STS
CRUISE MISSILE MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
1	***AGM-86B/C MISSILE SYSTEMS***						
	TR: TOs 11N-W80.83-2, 21M-AGM86-2-1, 21M-AGM86-8-1, 21M-AGM86-2-3, 21M-AGM86-8-3, 21M-AGM86-31, 21M-AGM86-32, 21M-AGM86-8-2, 21M-AGM86-8-4, 21M-AGM86-23						
1a	Interpret missile diagrams	5					
1b	Replace missile components						
1b(1)	Common missile radar altimeter	3					
1b(2)	Receive radar antenna						
1b(3)	Guided missile flight controller	3					
1b(4)	Impact fuze						
1b(5)	Electrical resistance temperature transmitter						
1b(6)	Pitot static tube						
1b(7)	Inertial navigation element	3					
1b(8)	Pressure sensing transducer						
1b(9)	Warhead arming device	3					
1b(10)	Flight data transmitter	3					
1b(11)	Air cycle machine						
1b(12)	Umbilical enclosure assembly						
1b(13)	Transmit radar antenna						
1b(14)	Rotary switch	3					
1b(15)	Heat exchanger						
1b(16)	Deployment actuator cartridges						
1b(17)	Deployment actuators						
1b(18)	Control surfaces						
1b(19)	Thermal battery						
1b(20)	Engine air inlet						
1b(21)	Fuel pump electronic unit						
1b(22)	File drawer						
1b(23)	Fuel system valves						
1b(24)	Electrical J-box						
1b(25)	Electromechanical linear actuator	5					
1b(26)	Actuator controller	3					
1b(27)	Missile cabling						
1b(28)	DC Generator						
1b(29)	Engine	3					

ATTACHMENT 4
AFSC 2M051/2M071 STS
CRUISE MISSILE MAINTENANCE TASKS

							CERTIFY
		CORE	START	COMP	TRAINEE	TRAINER	OFFICIAL
ITEM #	**TASK / KNOWLEDGE ITEM**	TASK	DATE	DATE	INITIALS	INITIALS	INITIALS
1b(30)	Engine inlet side panel antennas						
1b(31)	GPS Receiver Interface Unit (GRIU)	5					
1b(32)	Warhead Interface Unit	5					
1b(33)	Global Positioning System antenna						
1b(34)	Fuze cables/J-box						
1b(35)	Desiccant assemblies	3					
1b(36)	Expanding Tube Release System						
1b(37)	Fuel boost pump						
1c	Perform the following						
1c(1)	Aerosurface deployment/stowage	3					
1c(2)	Missile transfer	3					
1c(3)	Forward ECS leakage rate check	3					
1c(4)	Fin/elevon rigging inspection	5					
1c(5)	Fin/elevon rigging	5					
1c(6)	Aft ECS leakage rate check						
1c(7)	Engine leakage rate check	3					
1c(8)	Engine fuel priming	5					
1c(9)	AGM 86B Fuel/Defuel/Emergency defuel	5					
1c(10)	AGM 86C Fuel/Defuel/Emergency defuel	5					
1c(11)	Missile safe status check	3					
1c(12)	Missile receipt/preparation for shipment						
1c(13)	Engine receipt/preparation for shipment						
1c(14)	Crating/Uncrating missile to/from shipping container						
1c(15)	Missile assembly/system 13 requirements	5					
1c(16)	EED Squib Resistance Test (ICT)	3					
1c(17)	Corrosion prevention and treatment						
1d	Perform missile checkout						
1d(1)	Level 1	5					
1d(2)	Level II						
1d(3)	Flight Load	5					
1d(4)	INE autocal/declassification						
1d(5)	Memory dump/interpret memory dump printout	5					
1d(6)	Isolate malfunctions	5					
1e	Perform missile serviceability inspection	7					
1f	Perform missile component installation inspection	7					

ATTACHMENT 4
AFSC 2M051/2M071 STS
CRUISE MISSILE MAINTENANCE TASKS

2	***AGM-129A MISSILE SYSTEMS***						
	TR: T.O. 21-AG129-2-1, 21-AG129-31, 11N-W80.85-2, 21-AG129-8-1, 21-AG129-8-2, 21-AG129-23						
2a	Interpret missile diagrams	5					
2b	Replace missile components						
2b(1)	Impact sensor assembly						
2b(2)	Electrical equipment cooling unit						
2b(3)	Air cycle cooling unit assembly	3					
2b(4)	Navigation control set	3					
2b(5)	Sensor set	3					
2b(6)	Ice detector transducer	3					
2b(7)	Electrical/pneumatic distribution box						
2b(8)	Forward avionics unit	3					
2b(9)	Arm/disarm device	5					
2b(10)	Cable assemblies						
2b(11)	Separation switch						
2b(12)	Radar altimeter						
2b(13)	Forward altimeter antenna						
2b(14)	Aft altimeter antenna						
2b(15)	Pressure transmitter						
2b(16)	Air data pitot assembly						
2b(17)	Air shutoff valve						
2b(18)	Propellant actuated gas pressure generator						
2b(19)	Engine	3					
2b(20)	Explosive actuators						
2b(21)	Aft avionics unit						
2b(22)	Thermal batteries						
2b(23)	Linear electromechanical actuators						
2b(24)	Deployment actuators						
2b(25)	Control surfaces						
2b(26)	Desiccant assemblies	3					
2c	Perform the following						
2c(1)	Fuel vapor detection	5					
2c(2)	Fuel/Defuel/emergency defuel/fuel leak repair	5					
2c(3)	Missile transfer	3					
2c(4)	ECS leak test and isolation	3					
2c(5)	Missile leak test and isolation/repair	5					
2c(6)	Coating repair	5					
2c(7)	Aerosurface deployment/ stowage	3					

2c(8)	Missile safe status check	3					
2c(9)	Missile receipt/preparation for shipment						
2c(10)	Engine receipt/preparation for shipment						
2c(11)	Engine fuel priming	5					
2c(12)	Crating/Uncrating missile to/from shipping container						
2c(13)	Missile assembly	5					
2c(14)	Corrosion prevention and treatment						
2d	Perform missile checkout						
2d(1)	Level I	5					
2d(2)	Full fin Level I						
2d(3)	Level II						
2d(4)	Flight Load	5					
2d(5)	Isolate malfunctions	5					
2e	Perform guidance set calibration						
2f	Perform Guidance set declassification						
2g	Perform missile serviceability inspection	7					
2h	Perform missile component installation inspection	7					
3	***AIRCRAFT ROTARY LAUNCHER AND PYLON SYSTEMS***						
	TR: TOs 11G22-5-5-2, 11G22-5-5-8-19, 11L1-2-25-8-1, 11L1-2-25-8-4, 11N-C5039-2, 11N-C5039-8, 11N-L5001-2, 11N-L5002-2, 11N-L5002-8, 11N-L5006-2, 11N-L5006-8, 11N-L5005-8, 11N-T5162-2, 11N-T5162-8, 11N-T5166-2, 11N-T5166-8, 11N-T5167-2, 11N-T5167-8, 11N-T5168-2, 11N-T5168-8, 11N-T5169-2, 11N-T5169-8, 16W6-33-1, 16W6-33-8-1, 21-AG129-8-2, 21M-AGM86-8-2, 21M-AGM86-8-4						
3a	Interpret launcher/pylon diagrams	5					
3b	Perform launcher/pylon missile safe status check	5					
3c	Replace launcher components						
3c(1)	Decoder-receiver	5					
3c(2)	Nuclear station logic unit	5					
3c(3)	B-52H relay assembly	5					
3c(4)	B-2 nuclear weapons control monitor						
3c(5)	B-2 missile status relay assembly						
3c(6)	B-2 transformer rectifier unit						
3c(7)	B-2 bomb status relay assembly						
3c(8)	B-2 ejector relay assembly						
3c(9)	Cables (B-2/B-52H)						
3d	Replace pylon components						
3d(1)	Decoder-receiver	5					
3d(2)	Relay assembly	5					

3d(3)	Cables						
3e	Perform launcher/pylon checkout						
3e(1)	Empty pylon	5					
3e(2)	Empty launcher	5					
3e(3)	Loaded launcher	5					
3e(4)	Loaded pylon	5					
3e(5)	Autocal/declassification/memory dump	5					
3e(6)	Isolate malfunctions	5					
3f	Perform serviceability inspection						
3f(1)	Loaded launcher	7					
3f(2)	Loaded pylon	7					
3g	Perform Level III checkout						
3g(1)	Decoder receiver						
3g(2)	Nuclear station logic unit						
3g(3)	B-2 nuclear weapons control monitor						
3g(4)	B-2 missile relay status assembly checkout						
3g(5)	B-2 bomb status relay assembly checkout						
3g(6)	B-2 ejector relay assembly checkout						
3g(7)	B-2 transformer rectifier unit checkout						
3h	Isolate/repair malfunctions on the following						
3h(1)	Decoder receiver						
3h(2)	Nuclear station logic unit						
2h(3)	B-2 nuclear weapons control monitor						
3h(4)	B-2 missile status relay assembly						
3h(5)	B-2 bomb status relay assembly						
3h(6)	B-2 ejector relay assembly						
3h(7)	B-2 transformer rectifier unit						
3i	***WEAPONS HANDLING, STORAGE, AND TRANSPORTATION***						
	TR: AFI 91-115, AFI 21-204, T.O. 11N-H5083-1, 11N-H5083-1CL-1, 11N-W80.83-2CL-2, 11N-W80.85-2CL, 35D3-11-36-6WC-2						
3i(1)	MHU-196/M						
3i(1a)	Transport CSRL/LLA						
3i(1b)	Transfer CSRL/LLA to and from trailer						
3i(1c)	Transport Pylon/PLA						
3i(1d)	Transfer Pylon/PLA to and from trailer						
3i(2)	MHU-141/M						
3i(2a)	Transport missile/handling fixture						
3i(2b)	Transfer missile/handling fixture to and from trailer						
3i(2b1)	Using overhead hoist						

3i(2b2)	Using jammer						
3i(2b3)	Using forklift						
3i(3)	Pylon Loader Adapter (PLA)						
	TR: T.O. 11N-H5066-2, 35MA1-1-101						
3i(3a)	Perform 12 month inspection						
3i(3b)	Perform 24 month P.E.						
3i(3c)	Prepare for shipment/receiving inspection						
3i(3d)	Repair						
3i(4)	Launcher Loader Adapter (LLA)						
	TR: T.O. 11N-5084-2						
3i(4a)	Perform 12 month inspection						
3i(4b)	Perform 24 month P.E.						
3i(4c)	Prepare for shipment/receiving inspection						
3i(4d)	Repair						
3i(5)	Weapons movement						
3i(5a)	Inner area movement						
3i(5b)	Outer area movement						
4	***PERFORM MAINTENANCE/OPERATE THE FOLLOWING***						
	TR: TOs 11N-H5028-2, 11N-H5054-2, 11N-H5095-2, 11N-T5039-2, 11N-T5087-2, 11N- H5088-2, 11N-H5099-2, 11N-W80.83-2, 21-AG129-2-1, 21M-AGM86-2-31, 33D9-11-50-2, 33D3-14-20-1, 33D9-2-7-2, 33D9-5-42-1, 35D-1-193, 35D3-11-45-2, 35D3-11-50-2, 35D5-4-6-1, 35D9-38-56-1, 35M8-2-7-1, 37A9-6-2-1, 35D3-6-33-13, 42B5-1-2, 37A9-6-2-1, 21M-AGM86-31, 33A2-2-23-31, 35C2-2-31-61, 35C2-3-31-61, 35C2-2-127-1, 33D9-5-42-1, 35C3-3-25-11, 35C3-3-41-2 33D9-2-14-2, 33D5-14-44-1, and applicable service manuals						
4a	Nitrogen/Argon Cart						
4b	Air Purge Pressurization Unit TL-1977/TL-2800	5					
4c	Fuel/defuel equipment	5					
4d	Fuel vapor detector						
4e	Missile test stand (MSU 179/E)	5					
4f	Guided missile handling fixture (MHU-159/E)						
4g	Guided missile handling unit (MHU-200/E)						
4h	Missile nitrogen charging adapter set						
4i	Test/maintenance stand rail set (MTU-89/E)	5					
4j	Guided missile maintenance stand (MSU-202/E)	5					
4k	ACM Fuel Adapter Unit ADU-737/E						
4l	Engine leak detector MXU-720/E						
4m	Electric Squib Test Set AN-GSM-267						

5	***ELECTRONIC SYSTEM TEST SET (ESTS) AN/GSM-263/A/C/F/G***						
	TR: TOs 33D9-61-71-1, 33D9-61-71-1-1, 33D9-61-71-4, 33D9-671-71-21, 33D9-61-71-24						
5a	Describe the operation of the following systems						
5a(1)	Power distribution, control, and monitor						
5a(2)	Temperature control/cooling						
5a(3)	Bus analyzer (263C)						
5a(4)	Waveform generator (263C)						
5a(5)	Tape drive system (263C)						
5a(6)	Data bus extender (263F/G)						
5b	Perform ESTS tests						
	TR: TOs 33D9-61-71-7-1, 33D9-61-71-28-1						
5b(1)	Confidence test	3					
5b(2)	Autocalibration						
5b(3)	Operational Assurance Test						
5c	Perform ESTS preventive maintenance	7					
5d	Perform ESTS calibration/adjustment procedures						
5d(1)	Calibration/certification	7					
5d(2)	HP7906 disc drive alignment	7					
	TR: TO 33DA43-20-2						
5d(3)	Computer/controller power supplies	7					
5e	Interpret ESTS schematics/ diagrams	7					
5f	Inspect ESTS disc media using cleaner/verifier	7					
5g	Describe the operation of the disc cleaner/verifier						
5h	Isolate ESTS malfunctions						
5i	Bench test ESTS modular power supplies						
	TR: TOs 33D7-6-202-1, 35C1-2-1-191, 35C1-2-560-1, 35C1-2-750-1						
5j	Replace ESTS components						
5j(1)	Computer subcomponents						
5j(2)	Disc drive subcomponents						
5j(3)	Circuit card assemblies						
5j(4)	Power supplies						
5j(5)	Cable assemblies						
5j(6)	Drawer assemblies						
5j(7)	Drawer assembly subcomponents						
5j(8)	Patchboard components						
5j(9)	Patchboard receiver contacts						
5k	Perform serviceability inspection						

5l	Perform maintenance on						
5l(1)	Test adapter groups/interconnecting groups/test adapter kits						
	TR: TOs 11N-T5113-2, 33D9-16-9-1, 33D9-19-55-1, 33D9-19-58-11, 33D9-19-81-1						
5l(2)	Signal data converter CV-364/GSM-263						
	TR: TOs 33D9-19-54-1, 33D9-19-54-8-1						
5l(3)	Genie Mix-N-Match portable lift						
6	***AIR DATA TEST SET (ADTS) AN/GSM-291***						
	TR: TO 33D9-61-71-1						
6a	Describe the operation/function of the following systems						
6a(1)	AC power control						
6a(2)	Air data test controller						
6a(3)	Air dryer						
6a(4)	Vacuum pump						
6a(5)	Oil trap						
6b	Interpret ADTS schematics/diagrams	7					
6c	Perform ADTS preventive maintenance/servicing						
6d	Perform ADTS tests						
6d(1)	Self-test						
6d(2)	Air dryer leak test						
6e	Calibrate air data test controller						
6f	Isolate ADTS faults	7					
6g	Repair ADTS components						
6g(1)	Air data test controller						
6g(2)	Rack subcomponents						
6g(3)	Air dryer assembly						
6g(4)	Air dryer assembly subcomponents						
6g(5)	Vacuum pump						
6g(6)	Vacuum pump components						
6g(7)	Blower						
7	***MISSILE RADAR ALTIMETER TEST ASSEMBLY (MRATA)***						
	TR: TOs 33D7-44-233-1, 33D7-44-233-4						
7a	Describe the operation of MRATA subsystems						
7a(1)	Data control						
7a(2)	RF circuits control						
7a(3)	Measurement/monitoring						
7a(4)	RF signal processing/routing						
7a(5)	ESTS interface						
7a(6)	Power distribution and control						

7a(7)	Cooling						
7b	Perform MRATA tests						
7b(1)	Maintenance self-test	7					
7b(2)	ESTS-controlled self-test	7					
7c	Perform MRATA preventive maintenance	7					
7d	Perform MRATA fault isolation						
7d(1)	Interpret MRATA schematics/diagrams	7					
7d(2)	Interpret RF path status via LED indicators	7					
7d(3)	Interpret, develop, and use RF path programming for troubleshooting	7					
7e	Perform MRATA calibration/ alignment	7					
7f	Repair/replace MRATA components						
7f(1)	Drawer assemblies						
7f(2)	Power supplies						
7f(3)	Cable assemblies						
7f(4)	Circuit card assemblies						
7f(5)	Active RF components/modules						
7f(6)	Couplers and fixed attenuators						
7f(7)	Semi-rigid coaxial assemblies						
7f(8)	Coaxial switches						
7f(9)	Programmable attenuators						
7f(10)	Self-test receiver						
7f(11)	Delay assemblies						
7f(12)	Socketed integrated circuits (ICs)						
7g	Perform serviceability inspection						
8	***ELECTRONIC COMPONENTS COOLING EQUIPMENT***						
	TR: TO 33D9-122-20-2, 33D7-86-55-1						
8a	Perform operational test						
8b	Perform preventive maintenance						
8c	Interpret schematics/ diagrams	7					
8d	Isolate malfunctions	7					
8e	Calibrate						
8e(1)	Flowmeters						
8e(2)	Temperature and pressure switches						
8e(3)	Air flow switch (ACM)						
8e(4)	Perform facility input air test						
8f	Replace subcomponents						
8g	Perform serviceability inspection	7					

9	***REMOTE SWITCHING CONTROL ASSEMBLY (RSCA) C-11870/GSM-263***						
	TR: TOs 33D9-54-75-1, 33D9-54-75-7-1						
9a	Perform operational checkout						
9b	Perform preventive maintenance						
9c	Interpret schematics/diagrams	7					
9d	Perform self-test	7					
9e	Perform calibration						
9f	Replace components						
9f(1)	Power distribution assembly						
9f(2)	Interface bus extender						
9f(3)	Interface assembly						
9f(4)	Chained card cage assembly						
9f(5)	Circuit card assemblies						
9f(6)	Cabinet assembly subcomponents						
9f(7)	Cable assemblies						
9g	Isolate malfunctions	7					
9h	Perform serviceability inspection	7					
10	***SENSOR TEST SET AN/GSM-320***						
	TR: TO 33D9-142-23-1						
10a	State the purpose of Sensor Test Set major components						
10b	Perform operational checkout						
10c	Perform preventive maintenance						
10d	Interpret test set schematics/diagrams						
10e	Isolate test set malfunctions						
10f	Calibrate/align subcomponents						
10f(1)	Calorimeter signal conditioning loop						
10f(2)	Belt alignment						
10g	Replace test set components						
11	***USE THE FOLLOWING TYPES OF TEST EQUIPMENT AND MAINTAIN AGM-86B/AGM-129A SUPPORT EQUIPMENT***						
	TR: TO 31-1-141-10 (Sections I, III, VIII, XI); End Item User Manuals						
11a	Oscilloscope	7					
11b	Signal/pulse generating equipment	7					
11c	Frequency/time measuring equipment	7					
11d	Microwave calibration equipment	7					
11e	Portable automatic test equipment calibrator	7					
11f	Optical Micrometer	7					

ATTACHMENT 4
AFSC 2M051/2M071 STS
CRUISE MISSILE MAINTENANCE TASKS

12	***WEAPON STORAGE AREA (WSA) FACILITIES/SUPPORT SYSTEMS***						
	TR: AFI 32-1065, AFI 23-201, AFI 31-101, AFI 31-207 AFOSH STAND 91-46, DoD 5210.41-M						
12a	Operate the Fire suppression (halon/AFFF/water)						
12b	Operate the overhead hoist/monorail system	3					
12c	Operate the hydraulic/electrical/pneumatic systems						
12d	Operate the cruise missile bulk fuel storage system						
12e	Operate the indoor fuel tank system						
12f	Perform the following						
12f(1)	IMF/structure Open/Close procedures						
12f(2)	Close-in sentry duties						
12f(3)	Sole Vouching Authority Duties						
12f(4)	Key and lock procedures						
13	***ADMINISTRATIVE SUPPORT FUNCTIONS***						
13a	Information security						
	TR: AG-129 SCG, AGM-86B/C SCG, AFI 31-401						
13a(1)	Perform marking, storage, handling, and destruction of classified material						
13a(2)	Determine classification/declassification of material						
13b	Compile, update, and distribute reports						
	TR: ACCI 21-101, local operating instructions						
13b(1)	Daily status reporting / Force Management Info Sys (FMIS) reporting						
13b(2)	Monthly Maintenance Summary						
13b(3)	Executive summary						
13c	Compile, review, analyze, and maintain missile systems information for historical documentation						
	TR: ACCI 21-101, AFI 21-103, TO 00-5 series, 00-20 series						
13c(1)	CSAS/REMIS						
13c(2)	Historical documentation						
13c(3)	ESTS printouts						
13d	Perform trend analysis on						
	TR: ACCI 21-101						
13d(1)	ELT/EPT						
13d(2)	LLT/LPT						
13d(3)	LVL I, LVL II, LVL III						
13d(4)	SIT/MIT						
13d(5)	B-2A post-load check						
14	***PERFORM CTK DUTIES***						
	TR: AFI 21-101, ACCI 21-101						

15	***PERFORM SUPPLY DUTIES***						
	TR: AFMAN 23-110						
15a	Maintain shelf life program						
15b	Initiate AF Form 1500 series tags						
16	***ENVIRONMENTAL POLLUTION/HAZARDOUS WASTE DUTIES***						
	TR: AFI 32-7042						
17	***PERFORM TMDE MANAGEMENT DUTIES***						
	TR: 00-20-14, 32B14-3-1-101, 33K-1-100-1, 33K-1-100-2, 51-1-01						

Section B - EST SUPPORT MATERIALS

None identified.

PART II
Section C - TRAINING COURSE INDEX

1. **Purpose**. This section of CFETP identifies training courses available in the Missile and Space Systems Electronics specialty and shows how the courses are used by each MAJCOM in their career field training programs. Career field functional managers and training management personnel should use this information to plan, develop, and update their respective MAJCOM continuation training program.

2. **Air Force In-Residence Courses**

a. *3-Level Awarding Courses*. Completion of one of the following courses is mandatory for the award of the 3-skill level.

CRS NO./TITLE	***MDS/EQUIP***	***LOCATION***	***USER***
V3ABR2M031A Missile and Space Systems Electronics Maintenance Apprentice (ICBM)	ICBM	VANDENBERG	AFSPC
V3ABR2M031B Missile and Space Systems Electronics Maintenance Apprentice (ALCM/ACM)	ALCM/ACM	VANDENBERG	ACC

b. *Other In-Resident Courses.*

CRS NO./TITLE	***MDS/EQUIP***	***LOCATION***	***USER***
V3AZR2M051 Automated Test Station (ATS) Systems Maintenance (Support Equipment Maintenance)	ICBM	VANDENBERG	AFSPC
V3AZR2M051 Verification and Checkout Equipment (VACE) (Support Equipment Maintenance)	ALCM/ACM	VANDENBERG	ACC
V3AZR2M071 WS-133A/M Technical Engineering	ICBM	VANDENBERG	AFSPC
L3ATR40020 Electronic Principles		LACKLAND	ALL
ICBM-IC ICBM Maintenance Instructional Techniques Course	ICBM	F E WARREN	AFSPC
ICBM-MIC ICBM Maintenance Evaluator Course	ICBM	F E WARREN	AFSPC

3. **Extension Course Institute (ECI) Courses**

CRS NO.	***COURSE TITLE***
CDC 2M051	Missile and Space Systems Electronics Journeyman
CDC 2M071	Missile and Space Systems Electronics Craftsman

PART II
Section D - MAJCOM UNIQUE PROCEDURES

None identified.